JOURNAL OF HOUSING

TECHNICAL AND MAINTENANCE ISSUE | OCTOBER 1954

bradford

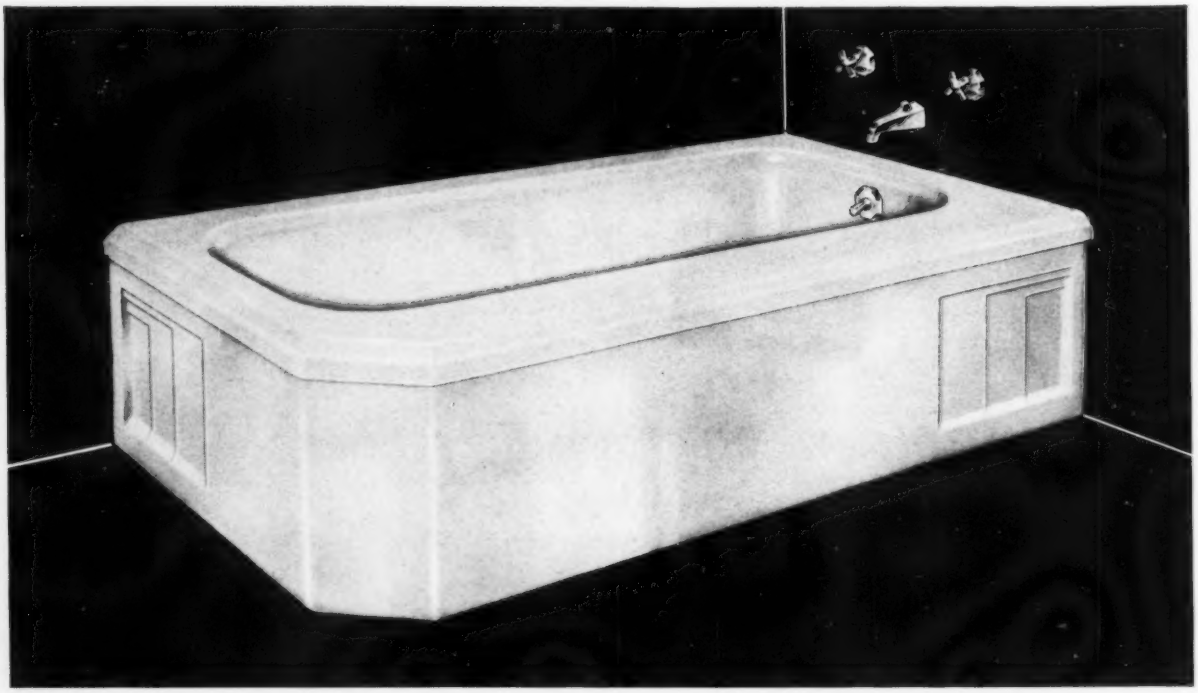
GROUNDS

STRUCTURAL

NOW READY FOR YOU

THE *Albecor*

ALLIANCEWARE'S NEW CORNER TUB



Architects, builders, and home owners have long wanted it—a corner tub of formed steel construction, with all the fine quality features of AllianceWare. This AllianceWare tub—The ALBECOR—is now ready for you. Observe its outstanding advantages and you'll find many installations where The ALBECOR will be your choice.

- Five foot length
- 15″ deep
- Attractive panelled apron
- Wide seat—an integral part of the rim
- AllianceWare patented grab rail around entire outside edge
- 14 gauge steel with stain-proof enamel surface
- AllianceWare wall guard
- AllianceWare patented wall-hung installation
- Five colors—pink, green, grey, tan, blue—as well as white
- For right-hand or left-hand installations

AllianceWare
PORCELAIN ON STEEL

Write for complete specification sheet and installation diagram.

ALLIANCEWARE, INC. • Alliance, Ohio

Bathtubs • Lavatories • Closets • Sinks

Plants in Alliance, Ohio and Colton, California

LIFT-OUT WINDOWS

Cleaning or painting windows used to be a major household job. Now, with R·O·W lift-out windows, these chores can be done easily—*inside the home.*

See your local lumber dealer or write

R·O·W SALES CO. 1340-74 ACADEMY AVENUE · FERNDALE 20, MICHIGAN

R·O·W is the registered trade mark of the R.O.W. Sales Co.

AUTHORIZED R·O·W DISTRIBUTORS:

ALABAMA
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

ARKANSAS
CENTRAL R·O·W DISTRIBUTORS OF ARKANSAS, North Little Rock, Arkansas

CALIFORNIA
CALIFORNIA BUILDERS SUPPLY, INC., Richmond, Fresno, Sacramento, Calif.
T. M. COBB CO., Los Angeles, San Diego, California

COLORADO
LUMBER DEALERS, INC., Denver, Colorado

CONNECTICUT
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey

DELAWARE
DEALERS WAREHOUSE SUPPLY CO., INC., Baltimore, Maryland

DISTRICT OF COLUMBIA
DEALERS WAREHOUSE SUPPLY CO., INC., Arlington, Virginia

FLORIDA
V. E. ANDERSON MFG. CO., INC., Bradenton, Fla.

GEORGIA
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

IDAHO
BOISE SASH & DOOR, INC., Boise, Idaho
JOHNSON BROS. PLANING MILL CO., Idaho Falls, Idaho

ILLINOIS
V. E. ANDERSON MFG. CO., INC., Owensboro, Kentucky
IMSE-SCHILLING SASH & DOOR CO., St. Louis, Missouri
R·O·W WINDOW CO., Joliet, Illinois

INDIANA
V. E. ANDERSON MFG. CO., INC., Owensboro, Kentucky
R·O·W WHOLESALE DISTRIBUTORS, INC., Norwood, Ohio
R·O·W WINDOW CO., Joliet, Illinois

IOWA
ANDREW A. KINDEM & SONS, INC., Minneapolis, Minnesota
WISCONSIN WINDOW UNIT CO., Merrill, Wisconsin

KANSAS
MARTIN MATERIAL CO., Kansas City, Missouri

KENTUCKY
V. E. ANDERSON MFG. CO., INC., Owensboro, Kentucky
R·O·W WHOLESALE DISTRIBUTORS, INC., Norwood, Ohio

MAINE
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey

MARYLAND
DEALERS WAREHOUSE SUPPLY CO., INC., Baltimore, Maryland

MASSACHUSETTS
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey

MICHIGAN
FLINT SASH & DOOR CO., INC., Flint, Saginaw, Michigan
PORTER-HADLEY CO., Grand Rapids, Michigan
ROYAL OAK WHOLESALE CO., Royal Oak, Michigan

MINNESOTA
ANDREW A. KINDEM & SONS, INC., Minneapolis, Minnesota

MISSOURI
IMSE-SCHILLING SASH & DOOR CO., St. Louis, Missouri
MARTIN MATERIAL CO., Kansas City, Missouri

MONTANA
FALLS WINDOW & CABINET SHOP, Great Falls, Montana
INTERSTATE LUMBER CO., Missoula, Montana
WESTERN BUILDERS, Billings, Montana

NEBRASKA
THE SOTHMAN CO., Grand Island, Nebraska

NEW HAMPSHIRE
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey

NEW JERSEY
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey
JOHNSON & WIMSATT, INC., Westville, New Jersey

NEW YORK
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey
A. ROBERSON & SON, INC., Binghamton, New York
THE WHITMER-JACKSON CO., INC., Buffalo, Rochester, New York

NORTH CAROLINA
DALTON-BUNDY LUMBER CO., INC., Norfolk, Virginia
MILLER MILLWORK CORP., Charlotte, North Carolina
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

NORTH DAKOTA
JACK R. KINNARD & CO., Minot, North Dakota

OHIO
FABROW MFG., INC., Toledo, Ohio
THE MAHONEY SASH & DOOR CO., Canton, Youngstown, Ohio
R·O·W WHOLESALE DISTRIBUTORS, INC., Norwood, Ohio

OKLAHOMA
LUMBERMEN'S SUPPLY CO., Oklahoma City, Oklahoma

OREGON
ACME MILLWORK, INC., Kirkland, Washington
SPOKANE SASH & DOOR CO., Spokane, Washington

PENNSYLVANIA
ADELMAN LUMBER CO., Pittsburgh, Pennsylvania
JOHNSON & WIMSATT, INC., Westville, New Jersey
A. ROBERSON & SON, INC., Binghamton, New York

RHODE ISLAND
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey

SOUTH CAROLINA
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

SOUTH DAKOTA
WATERTOWN SASH & DOOR CO., Watertown, South Dakota

TENNESSEE
V. E. ANDERSON MFG. CO., INC., Owensboro, Kentucky
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

TEXAS
CHUPIK WOOD MFG. CO., INC., Temple, Texas
KRITSER SUPPLY CO., Amarillo, Texas
LUMBERMEN'S SASH & DOOR CO., Dallas, Texas
SOUTHWEST SASH & DOOR CO., Houston, Texas
H. E. WOODRUFF CO., Corpus Christi, Texas

UTAH
R. W. FRANK & CO., Salt Lake City, Utah

VERMONT
GENERAL WOODCRAFT CO., INC., North Bergen, New Jersey

VIRGINIA
DALTON-BUNDY LUMBER CO., INC., Norfolk, Virginia
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

WASHINGTON
ACME MILLWORK, INC., Kirkland, Washington
SPOKANE SASH & DOOR CO., Spokane, Washington

WEST VIRGINIA
R·O·W DISTRIBUTORS, Rocky Mount, Virginia

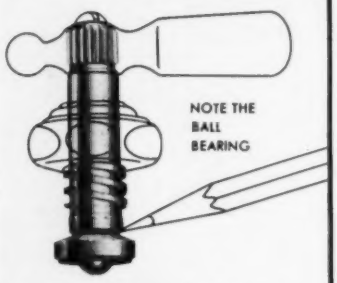
WISCONSIN
WISCONSIN WINDOW UNIT CO., Merrill, Wisconsin

WYOMING
FOWLER & PETH, Cheyenne, Wyoming

CANADA
CALGARY SASH & DOOR CO., Calgary, Alberta, Canada
CRANBROOK SASH & DOOR CO., Cranbrook, B. C., Canada
HAYWARD BUILDING SUPPLIES, LTD., Edmonton, Alberta, Canada
MT. PLEASANT SASH & DOOR CO., Vancouver, B. C., Canada
D. PORTER & SON, Stellarton, Nova Scotia, Canada
CUSHING MILLS, LTD., Calgary, Alberta, Canada

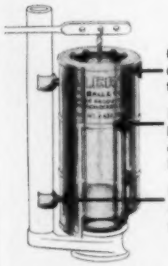
"ALERT"®
Water-Savers
CUT PLUMBING
REPAIR BILLS!

forget
WASHER REPLACEMENT
for the life of the faucet



"ALERT" Belco Ball Bearing Faucet Washer saves $1.00 or more per faucet per year in maintenance costs. Ball bearing action eliminates grinding that wears out ordinary washers. Easily installed by your own maintenance engineer. Used as original faucet equipment by leading manufacturers.

forget
TANK BALL
REPLACEMENT



Corrosion proof cylinder guides round tank ball to valve seat.

Monel kink-free chain lets spherical ball drop freely and seal in any position.

Spring-tempered Monel clips fit any size overflow pipe.

"ALERT" Friction-Free Tank Ball & Guide makes running toilets old-fashioned, eliminates maintenance calls. All metal parts of miracle MONEL—resists corrosion for years in hardest water. New improved design—easier than ever to install. For low-cost replacement, or available on request from plumbing fixture manufacturers on original equipment. Installed in Levittown, Pa. and thousands of other residential, industrial and government buildings.

ASK YOUR PLUMBING CONTRACTOR
OR JOBBER or write
Ardmore Products Co. Conshohocken, Pa.

Personals

COLEMAN WOODBURY
received a Franklin D. Roosevelt Foundation Award for outstanding books in the field of government and human welfare in September during the 50th annual meeting of the American Political Science Association held in Chicago. The award was presented to Mr. Woodbury as the editor of two books that came out of the Urban Redevelopment Study: *The Future of Cities and Urban Redevelopment* and *Urban Redevelopment: Problems and Practices.* The Urban Redevelopment Study, of which Mr. Woodbury was director, was jointly sponsored by NAHRO, the American Society of Planning Officials, and the Public Administration Clearing House from 1948 to 1951. Mr. Woodbury is a former executive director of NAHRO.

CHARLES ABRAMS,
housing consultant and chairman of the subcommittee on housing and redevelopment of the advisory council to the mayor of New York, is on a United Nations technical assistance assignment to Turkey and the Gold Coast, West Africa. He will confer in both countries on housing policy. Before going to Turkey, Mr. Abrams attended the Cambridge summer conference on colonial administration held at King's College, Cambridge, England.

A. C. SHIRE
has been named planning director of Michael Reese Hospital in Chicago. He succeeds Jack Meltzer, who left the position earlier this year to become planning director of the South East Chicago Commission (see May JOURNAL, page 150). Mr. Shire, who has had long service in housing with the federal government, has recently had his own consulting office in Washington.

MRS. HELEN S. MacPHERSON,
1952-53 president of the New England Regional Council of NAHRO and for two years a member of the NAHRO Board of Governors, has resigned her position as manager of Elm Haven, a project of the Housing Authority of the City of New Haven. She and her husband plan to move to the southwest. Mrs. MacPherson, who had been one of the authority's housing managers since 1941 and had been on its tenant selection staff previous to that time, was honored at a testimonial dinner sponsored by the Community Council of New Haven before she left her position.

ALBERT G. ROSENBERG,
who had been head of the community relations division of the Chicago Housing Authority, since early 1952, was named the first director of the newly organized Association of Area Councils for Neighborhood Development in Dayton. He took up his new duties in mid-September. Before going to Chicago, Mr. Rosenberg had been consultant for community councils of the Detroit Council of Social Agencies and directed a neighborhood project there. He had also held a similar position in Pittsburgh.

For Maintenance of ROOFS OF ALL TYPES

FATTY ACID PITCH BASE—
"Cottonseed Oil Gum"

Does Not Contain Any Asphalt or Tar

COATING MATERIAL—Interim Federal Specification SS-C-00560 (GSA-FSS) (Non-bleeding) Brushing or Spraying Consistency. For Roofs of All Types, Foundations, Walls, etc. Colors—Red, Green, Black, Aluminum.

CEMENT, PLASTIC—Interim Federal Specification SS-C-00188 (GSA-FSS) (Non-bleeding) For use in repairing roofs, walls, flashings, foundations, and as an expansion joint and caulking material. Colors—Red, Gray, Green, Black, Aluminum.

The **Coating Material** waterproofs and gives New Life and Color to all types of Built-up Roofs (smooth or gravel surfaced), Composition Felt Roofs in Roll or Shingle Form. Excellent for all types of Metal Roofs. These two materials have a successful record of unexcelled performance over a long period of years.

Remember—Composition Roofs Don't **Wear** Out. They **Dry** Out. A Roof must be very far gone that a Fatty Acid Pitch Base — "Cottonseed Oil Gum" Product will not Restore and make Watertight for years. It is probable you can save as much as two-thirds the cost of a New Roof.

VISIT our Display Booth No. 55 at the NAHRO National Exhibit, Bellevue-Stratford Hotel, Philadelphia, Pa., Oct. 11-14, 1954.

Phone or Write for complete descriptive literature, specifications, and quotations for your project.

THE GATCH SUPPLY CO.
Fallsway, Bath & Holliday Sts.
Baltimore 2, Md.
Phone—MUlberry 3885-6-7

MISS ALICE-LOUISE NATHAN,
housing officer of the eighth naval district with headquarters in New Orleans, has been transferred to the ninth naval district headquarters in Chicago. Miss Nathan has been secretary of the Southwest Regional Council of NAHRO and a JOURNAL reporter.

CHESTER L. WEAVER
is management officer in the operations division of the Public Housing Administration's central office in Washington. Mr. Weaver was erroneously reported in the August-September JOURNAL as being management officer for the Washington field office of PHA. Kenneth C. Cavanaugh is chief of the management section of the Washington field office.

ABRAHAM J. SHERMER,
executive director of the Housing Authority of the Town of Seymour, Connecticut, has established a prize at the University of Bridgeport to be given annually to the graduating senior of the college of business administration who has contributed to his community by effective participation in religious, civic, or health and welfare activities. Mr. Shermer, who was recently graduated from the university, named the prize the Moly Shermer Award in honor of his mother.

CHARLES W. SMITHERS
has resigned as executive director of the Watertown, New York housing authority to take a position with the Carry Construction Corporation, Canton, New York, developers of middle-income housing.

IN WATER HEATERS

There's only one

Permaglas®

and it's made by A.O. Smith CORPORATION

New or old concrete and masonry housing units can be enduringly enhanced in appearance and value by finishing with lustrous, colorful, long-lasting VINYLON Plastic. Damp basements can be transformed into dry, handsome rooms. Walls can be resurfaced both inside and out, for better looks and better service.

VINYLON is not a paint but a genuine liquid plastic. May be brushed or sprayed on. It is tough, leakproof, and weatherproof. Will not crack, peel, or stain. Flexible —actually stretches up to 300%. Highly resistant to acids, alkalies, oils, cleaning solutions, etc. Easily cleaned. Works equally well on wood or metal—even on roofs. Anticipated life, 12 to 15 years without deterioration.

Available in a variety of rich colors. Write for color chart and actual samples.

Announcing

VINYLON

PLASTIC SURFACING

for all kinds of

Masonry and Stucco Buildings

SURFACE COATING ENGINEERS • 211 Woodward • Kalamazoo, Mich.

JOURNAL OF HOUSING

October 1954
Volume 11—Number 9

Publication of the
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS
1313 East Sixtieth Street, Chicago 37, Illinois
John D. Lange, Executive Director

224

Subscriptions to the JOURNAL OF HOUSING are $5; also available through membership in the Association at the rate of $10. Special issues, $1. Entered as second class matter October 25, 1944, post office, Chicago, Illinois, under Act of March 3, 1879. Issued monthly except August.

Editor: Dorothy Gazzolo. **Assistant Editor:** Jean Adams. **Editorial Associate:** John S. Lynch. **Advertising Manager:** R. M. Trevett. **Regional Reporters:** *New England,* Harold Taylor, Boston; *Middle Atlantic,* Robert Moyer, Baltimore; *North Central,* Bette Jenkins, Detroit; *Southwest,* Marie C. McGuire, San Antonio; *Pacific Northwest,* Rose Morry, Seattle; *Pacific Southwest,* Mrs. Esther Rowson, Vallejo. **Cover Design:** John Bradford. **Cover Picture:** center photograph by William Keck—a facade of the Chicago Housing Authority's Prairie Avenue Courts, designed by George Fred and William Keck. **Technical:** for names of those who provided assistance in developing this Technical and Maintenance issue of the JOURNAL OF HOUSING, see page 313.

CONTENTS

A contractor suggests some methods of cutting construction costs *page 314*

An architect proposes some design and construction improvements *page 315*

Photographs, floor plans, cost figures, and construction features presented on 14 projects *page 317*

Tough grasses to withstand tough wear recommended by Dr. Fred V. Grau *page 336*

Causes and cures of roof maintenance problems presented by Rutcher Skagerberg *page 343*

Jesse D. Diller suggests methods for preventing subfloor timber decay *page 348*

New York City Housing Authority saves on purchases by use of standard specifications and product testing system *page 352*

Cathodic protection system analyzed as method of stopping underground pipe corrosion *page 358*

Electric Living at Moderate Prices Clinches Sales With...

Low-priced Cowherd homes equipped with Hotpoint appliances are "quality built" throughout.

Cowherd kitchen area designed for modern electric appliances and laundry equipment—by Hotpoint!

Hotpoint Automatic Electric Dishwasher washes cleaner than by hand—cleaner than any other domestic dishwasher!

Hotpoint

ELECTRIC APPLIANCES

In Kansas City, near the famed Country Club Plaza district, builder Carson E. Cowherd is having singular success selling his Hotpoint-equipped homes. Priced from $12,750, the Cowherd homes fill a need in Kansas City for modern living at moderate prices. Perimeter heating, overhanging eaves, picture windows for both front and rear, aluminum sills and frames are featured. Hotpoint automatic dishwashers, Disposalls®, automatic washers and cabinets offer the big "plus" that makes these homes so desirable.

Rapid Sales Prove Cowherd Correct—Buyers' response to Hotpoint-equipped Cowherd homes was immediate and overwhelming. The first 38 homes were sold as soon as they were offered for sale. It was even impossible to hold one back as a display model.

Carson Cowherd attributes much of the *spontaneous* sales success to the Hotpoint appliances: Automatic Dishwashers which relieve the entire family of housework's most disliked chore; Disposalls which eliminate food waste before it can become garbage; clothes washers with famed Triple-Action rinsing; and gleaming Hotpoint all-steel cabinets.

Cowherd Method No Mystery—All across the country sales-minded builders find Hotpoint appliances giving their customers the automatic electric living they expect in quality homes of today. Check with the Hotpoint distributor near you and learn how Hotpoint can build rapid sales for you!

Hotpoint Automatic Clothes Washer's Wond-R-Dial regulates the entire automatic washing cycle.

Hotpoint Disposall automatic food waste disposer has twice the life and only half the wear of conventional types!

Hotpoint changes your viewpoint...automatically

RANGES • REFRIGERATORS • DISHWASHERS • DISPOSALLS® • FOOD FREEZERS • CABINETS
AUTOMATIC WASHERS • CLOTHES DRYERS • AIR CONDITIONERS • DEHUMIDIFIERS
HOTPOINT Co. (A Division of General Electric Company) **5600 West Taylor Street, Chicago 44, Illinois**

ENDORSES 4-WAY COST-CUTTING PLAN

"...we are sold on the 'Sexauer' Plumbing Maintenance Plan."

EDMUND HORWINSKI
Executive Director
HOUSING AUTHORITY
of the City of
OAKLAND, CALIF.

Operating costs are DOWN at Oakland Housing Authority projects. And no wonder...Though more than 100 different repair parts are needed to keep their particular fixtures in tip-top shape, maintenance mechanics always have the *right* parts. They never have to use ill-fitting or inferior materials; they save valuable installation time and run no risk of ruining costly fixtures.

The secret of the Oakland Housing Authority's efficient cost-cutting methods? *A thorough 'Sexauer' Survey--which accurately pre-determines the correct plumbing repair parts required.*

COSTS CUT 4 WAYS

As a result, operating costs are cut 4 ways:

1. Parts inventories are kept intelligently and efficiently low.
2. Time-consuming second trips are eliminated; hundreds of man hours are saved.
3. Water, fuel, and labor bills are lowered.
4. Costly fixtures are conserved.

WRITE FOR SURVEY GUIDE

Put the cost-cutting 'Sexauer' Plumbing Maintenance Plan to work for *you*. Get complete information—including a 'Sexauer' plumbing maintenance survey guide. Fill in the coupon. Mail it today.

J. A. Sexauer Mfg. Co., Inc.,
2503-05 Third Ave., N.Y.C. 51. Dept. J-104

My name.....Title.....

Organization.....

Address.....

City.....Zone...State.....

SEXAUER
WORLD'S LEADING SPECIALISTS IN PLUMBING AND HEATING REPAIR PARTS

News Notes

HOUSING ASSOCIATIONS COUNCIL REVIVED; NEW PROGRAM PLANNED

After several years inactivity, the National Council of Housing Associations sprang to life again in early June when representatives of eight citizens housing and planning associations met in Baltimore, revived the old council, and changed its name to the National Council of Housing and Planning Associations.

Objectives of the council are "to facilitate exchange of information between various housing and planning associations, and to encourage such organizations in communities where they do not already exist."

President of the revitalized organization, elected at the June meeting, is Frances H. Morton, executive secretary of the Citizens' Planning and Housing Association of Baltimore. The secretary-treasurer is Aaron Levine, executive director of the Citizens' Council on City Planning in Philadelphia.

The council has planned its next meeting for Philadelphia on October 11 in conjunction with NAHRO's annual conference there October 11-14. The council's meeting is scheduled for 2 p.m. at the offices of The Philadelphia Housing Association, 1717 Sansom Street. The major goal of the meeting will be to develop a clearing house service on citizen housing and planning association problems and on ways and means of stimulating the formulation of new groups in cities where they do not yet exist.

DEFEAT PROPOSED UTILITY RATE HIKE FOR CALIFORNIA PROJECTS

Public low-rent and war housing projects in southern California this summer came out on top in a tangle with the Southern California Edison Company over proposed electricity rate changes—the projects not only avoided heavy rate increases proposed by the utilities company but they came out of the fray paying lower rates than formerly.

The core of the dispute was an effort by the Edison Company to change the project rates from general service on a master meter to straight domestic service rates, minus the usual customer charges that go with individually metered service. The reclassification of project service would have meant a 50 to 100 per cent increase in costs for many of the 18 projects involved and some 200 per cent for two of them.

When the Edison Company petitioned the California Public Utilities Commission to institute the new rates, it met opposition from two Public Housing Administration officials who successfully argued that the rate increases were unreasonable and unjustified. The two PHA officials, acting in behalf of the 18 threatened projects, were Paul Sapp, chief of the utilities section of the San Francisco field office of PHA, and James E. McFeely, the field office attorney.

Mr. McFeely charged that the proposal would have tremendously increased the cost of electricity to the projects without changing in any way the service rendered. The company's service, both as it existed and as it was proposed, extended only to a master meter at each project and no further.

In denying the Edison Company's petition, the commission said, ". . . the applicant's proposed . . . schedule should be revised to permit multi-family accommodations of more than one structure the option of taking service on the general service schedules." A report on the decision observed that "the decision forestalls a disastrous increase in electricity rates for master-metered low-rent and war emergency projects in southern California and provides an important precedent for maintaining low utility rates in California and the nation."

PHA BEGINS MASS DISPOSAL OF 22 WAR HOUSING PROJECTS

The Public Housing Administration started the wheels rolling for a 25 million dollar war housing sale in the industrial area around Pittsburgh in mid-September when it sold the first of the 22 war housing projects in the area that are scheduled for disposition this year. The projects, consisting of 5340 dwelling units, are all located in Allegheny and Beaver counties.

The first project sold was the 250-unit Anthony Wayne Terrace in Beaver county, bought by a tenant cooperative with a $85,236.28 cash payment plus a mortgage for the balance of the $874,300 purchase price. The mortgage will be amortized over a 20-year period at 4¾ per cent interest.

Two other projects—one in Dravosburg in Allegheny county and Linmar Homes in Beaver county, each with 250 units—were scheduled to be sold later in September, also to tenant

cooperatives. And tenants in another Allegheny county project, 251-unit Shalercrest, were reported organizing to buy their project. Under present federal laws, occupants of war housing projects have first priority to buy the properties from the government. If no mutual cooperative organization of tenants is formed for this purpose, the project is then sold to the highest bidder on the open market.

Commenting on the Anthony Wayne Terrace sale, Herman D. Hillman, director of PHA's New York field office, noted that throughout the country 23 tenant organizations similar to the one at Wayne Terrace had purchased their war project homes. He said that "all of those tenant mutual associations have proved highly successful and the financial arrangements sound, both for the former tenants and the government. Beyond that, the purchasers have improved the properties they purchased."

CIO, BROKERS URGE NO FEDERAL HELP FOR SEGREGATED HOUSING

Appeals to President Eisenhower to prohibit any kind of federal assistance to housing developments that do not completely prohibit segregation came from two national organizations this summer—the Congress of Industrial Organizations and the National Association of Real Estate Brokers, Inc.

The C.I.O.'s appeal to the President in late July was in the form of a letter signed by Walter P. Reuther and James C. Thimmes, president and vice-president respectively of the organization. The labor leaders took the matter to the President, they said, because federal housing officials had told them that decisions on segregation could be made only at the highest policy level.

The C.I.O. leaders warned that unless a financing ban on segregated housing was quickly instituted, race relations were likely to worsen. "Should current trends continue," they said, "we are convinced that the pattern of racial segregation . . . will accelerate racial divisions and tensions which will disrupt relations throughout the cities of our nation."

The real estate organization in August telegraphed a similar request to the President, urging that he instruct federal housing agencies to apply the principles of nonsegregation to all housing built under federal insurance, guarantee, subsidy, or other forms of federal assistance. The message, signed by the president of the association, George S. Harris, pledged the group's full cooperation in carrying out these principles on the local level.

PROPOSE LAW CHANGE TO TRIPLE PUBLIC HOUSING IN PUERTO RICO

A plan to reduce incentive for Puerto Ricans to leave home and migrate north was this summer put before the second annual conference on problems of Puerto Rican migration by Colonel Cesar Cordero, director of the Puerto Rico Housing Authority. His proposal is to amend the Housing Act of 1949 to permit allocating public housing to Puerto Rico in terms of money rather than in dwelling units, since, it is claimed, three and a half units can be built in Puerto Rico for the same amount of money it costs to build only one unit in New York City: $4000 for a single family unit on the island against $14,000 in New York City. Colonel Cordero's plan has won the endorsement of Philip J. Cruise, chairman of the New York City Housing Authority, and has been discussed with federal officials.

By building up an adequate housing supply, Puerto Rico hopes to reduce the tendency toward nomadism among its people. Since 1940 the government has helped finance a total of 25,696 dwelling units—16,597 with combined federal and commonwealth funds, 3011 with Puerto Rican funds only, and 6088 through self-help programs.

NEW FHA REPORT REVEALS DATA ON HOME MORTGAGING IN 1953

The typical new home on which the Federal Housing Administration insured a mortgage in 1953 was a single family, five-room house valued by FHA at $10,140. The house had 924 square feet of floor space—about the same size as its 1952 counterpart—but its value was $118 (about 1 per cent) higher.

The typical home buyer in 1953 obtained a mortgage loan of $8555—86.5 per cent of the home's value, by FHA estimates—which the buyer undertook to pay off in monthly installments of $65.95 over a term of a little more than 22 years. The buyer's effective annual income was $4880, a little more than 15 per cent of which he spent on monthly mortgage payments, mortgage insurance premiums, fire insurance, taxes, and special assessments.

These and other facts about properties, borrowers, and mortgages involved in FHA-insured home financing transactions are recorded in the *(Continued column two, page 306)*

AMERICAN
Approved
PLAYGROUND EQUIPMENT

Unsurpassed in Design, Safety and Performance

● It's the *plus* factor that makes American the most respected name in Playground Equipment . . . *Plus* in design—American leads the field. . . . *Plus* in performance—*Approved* Equipment stronger, more ruggedly built to assure a lifetime of perfect repair-free service . . . *Plus* in safety—for American craftsmen are aware of their responsibility for the safety of your children. Thus, with American you receive far superior design and performance and unmatched safety.

WRITE FOR LITERATURE

AMERICAN
PLAYGROUND DEVICE CO.
ANDERSON, INDIANA U.S.A.
WORLD'S LARGEST MANUFACTURERS OF FINE PLAYGROUND & SWIMMING POOL EQUIPMENT

SILICON RUBBER TEXTURE

ONE COAT Covers—Colors and Textures

A One Coat, Ready Mixed, Elastic Type Interior Texture wall finish. It offers advantages found in no other product.

1. Perfect answer to all dry wall finishing
2. Ideal for refinishing old problem walls
3. Unusual adhesive quality
4. Apply with brush, roller, trowel, or spray
5. No prime coat needed
6. Coverage approximately 200 square feet as average texture
7. Drys in approximately four hours under normal conditions
8. Eight new beautiful fade-proof colors and white
9. Not harmed by freezing

NOW A COMPANION PRODUCT TOO . . .

FORMAN, FORD'S NEW LATEX EMULSION INTERIOR WALL FINISH

The ideal wall paint to solve new work and maintenance problems. Easy to apply and economical to use

Write for full details—

FORMAN, FORD & CO.
111 South 2nd Street
Minneapolis, Minnesota

NEWS NOTES—

(Continued from page 305)

forthcoming annual report of FHA covering the calendar year 1953.

Some other facts carried in the report: FHA last year insured mortgages on 151,800 new homes, 120,500 existing homes, and on multi-family projects containing 30,700 dwelling units. Three-fifths of the new homes financed under FHA mortgaging arrangements were valued at between $8000 and $12,000. The maximum mortgage that FHA was authorized to insure on a one- or two-family dwelling in 1953 was $16,000. Under the Housing Act of 1954, however, the authorized maximum has been raised to $20,000, down payments are lower, and amortization periods longer.

INSURANCE GROUP SAYS SAVINGS AND LOAN BUSINESS IS THRIVING

In its 20th anniversary report, the Federal Savings and Loan Insurance Corporation revealed in July that only 37 insured savings and loan associations have required the corporation's help in its two decades of operation—and only seven of these actually went into receivership. Other indications of the general health of the savings and loan business, the report says, are the increase in the number of savings and loan associations in operation, the high volume of their business, and the rising amount of the average savings account in such associations.

More than 3300 savings and loan associations are now insured by the corporation — 1748 of them state chartered and 1622 federally chartered. Their total assets are now about 26 billion dollars. In the year ending June 30, the report says, total savings coming into the associations, minus withdrawals, amounted to 3.7 billion dollars and the average savings account had jumped from $1002 in 1944 to $1684 in 1954. More home loans are now made in a single year by insured associations, the corporation says, than existed in their entire loan portfolio a decade ago.

The insurance corporation, set up during the depression as a secondary safeguard for savers, has grossed over 200 million dollars, chiefly from insurance premiums and interest on its investments. Of this amount, $147,620,390 has been placed in reserves and $39,039,869 has been paid to the United States Treasury as dividends on its capital stock. In 20 years of operation, the corporation has experienced insurance losses totaling about 5.1 million dollars, only 2.5 per cent of the gross income of the corporation since its establishment.

The initial capital of the insurance corporation, in the amount of 100 million dollars, was supplied by the federal government. In 1950 the corporation began retiring that capital, pursuant to law. Since then the government's investment has been reduced by annual repayments to $66,779,000.

STATISTICIANS, SOCIAL WORKERS ADD HOUSING TO ANNUAL AGENDA

The topic of housing was programmed for discussion this fall at the annual meeting of two associations not directly concerned with housing, the American Statistical Association and the Texas Social Welfare Association.

The American Statistical Association, meeting in Montreal in September, heard Morton Hoffman, director of research and statistics for the Baltimore housing authority, deliver a paper on "Needed Improvement in the United States Census from the Standpoint of Social Statistics Users." The association scheduled presentations on statistics requirements from the viewpoints of city planning, neighborhood improvement, education, and public housing, the latter subject having been Mr. Hoffman's assignment.

The Texas Social Welfare Association, scheduled to meet in Houston in November, has included three sessions on housing under the chairmanship of Mrs. Marie C. McGuire, executive director of the San Antonio housing authority. Over-all subject of the sessions will be "Social Planning in Community Rebuilding." The first day's session will deal with the broad scope of the problem, the second with the approaches and tools available to a city, and the third the impact of community rebuilding on social agencies.

NEW RULES REQUIRE ALL PRIVATE REDEVELOPERS TO BID FORMALLY

The Housing and Home Finance Agency has issued new competitive bidding requirements for private redevelopers of land in slum clearance and urban redevelopment areas that have been assembled with federal financial assistance under the Housing Act of 1949. The new rules, designed to assure maximum bidding competition, require prospective redevelopers to submit sealed bids, which are to be opened and read publicly at a specific time and place. Ample noti-

(Continued column one, page 308)

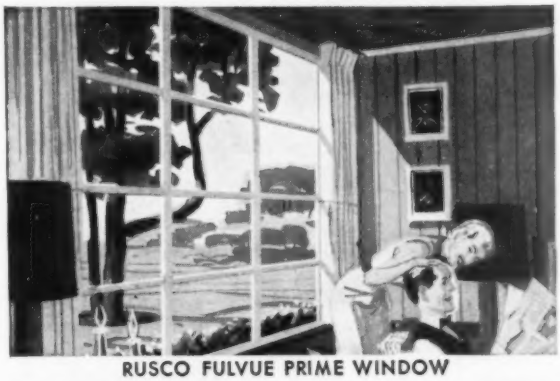
Rusco-equipped home in Beverly Hills project, Long Island, N.Y. *Architects and Builders:* Siegel and Rapp. *Photo by Herman Kroll.*

Here's why leading architects and builders say:

RUSCO PRIME WINDOWS

offer outstanding improvements in window design!

RUSCO HORIZONTAL-SLIDE PRIME WINDOW



RUSCO FULVUE PRIME WINDOW

RUSCO VERTICAL-SLIDE PRIME WINDOW

When deciding on window specifications—it's good business to remember that only RUSCO makes a window that DOES EVERYTHING A WINDOW SHOULD DO—a fully prefabricated, finish-painted, ready-to-install unit made of Armco hot-dipped tubular galvanized steel.

Here's what a good window should do—and what *only* RUSCO does!

- **GIVES COMPLETE PROTECTION.** Built-in weatherstripping and double-glass insulation give year 'round protection against heat, cold, wind, rain and insects—block outside noise.
- **ELIMINATES HANDLING OF "EXTRAS".** Nothing to change! Nothing to store! Rusco Windows with insulating sash (optional) and Fiberglas screen completely eliminate separate storm windows and screens.
- **EASY TO OPERATE.** The RUSCO PRIME WINDOW slides smoothly and silently on super-quality felt that banishes all possibility of binding or sticking! There's nothing to get out of kilter. No pulleys—no weights or counter-weights!
- **OFFERS SAFETY AND CONVENIENCE.** Each sliding glass panel or screen is quickly removable—*from the inside*—for easy cleaning. A remarkable safety factor.
- **GIVES DRAFT-FREE VENTILATION.** Rusco's patented MagicPanel® allows any desired amount of draft-free ventilation while offering positive protection from rain, sleet or snow!
- **PROVIDES MAINTENANCE-FREE SCREENING.** Rusco's Fiberglas screen will not rust, rot, corrode or stain and never needs painting. Even screens out airborne particles of dust and dirt!
- **MADE OF ARMCO ZINCGRIP.** The special purpose steel that prevents corrosion—bonderized and finished in beautiful baked-on enamel just like a fine automobile.
- **ADDS TO PROPERTY SALABILITY.** Nationally advertised—with universal consumer-acceptance—the RUSCO PRIME WINDOW is a needed, wanted and highly merchandisable unit. The *hottest* news in the field of building today.

For Complete Information and Specifications, write

"Always one step ahead of the weather" with RUSCO

The F. C. RUSSELL Company

Dept. 7-JH104 CLEVELAND 1, OHIO • *In Canada:* Toronto 13, Ontario

man, oh man! this is wonderful!

Here's a housing official who operates his project to everyone's satisfaction. He recognizes the imperative need of keeping his keys perfectly controlled with

TELKEE
Moore Key Control
Key Cabinets, System Parts & Illustrated Instructions FOR FILING AND CONTROLLING KEYS

Write for Catalogue No. JH-13
P. O. MOORE, INC.
300 4th Ave., New York 10, N.Y.

NEWS NOTES—

(Continued from page 306)

fication must be given to interested parties to develop their bids and, after the concurrence of HHFA, the land must be sold or leased to the redevelopers submitting the highest bids and meeting the building requirements.

Previously, local agencies have been permitted to negotiate sales at their own discretion after merely submitting evidence to the HHFA that there had been public notification of the availability of the property.

Exceptions to the bidding requirement will be made for land to be used for public institutions, when small parcels are to be sold from larger holdings, or when the cleared land has a special redevelopment adaptability.

BRITAIN TO BEGIN GOVERNMENT INSURANCE OF HOME MORTGAGES

Great Britain is experimenting with government guaranteed mortgages as a means of increasing home own-

(Continued column one, page 356)

Washington Summary

FUNDS FOR FARM HOUSING, OTHER PROGRAMS CUT BY CONGRESS

Congress, which in one breath approved the Housing Act of 1954, in the next gutted various provisions of it by cutting or killing appropriations to carry them out.

Although the 1954 act authorized additional funds for the farm housing program (see August-September JOURNAL, page 285), Congress failed to appropriate any money to continue the program after June 30 and it was stopped as of that date.

Congress also cut appropriations for planning and public facilities programs in the supplemental appropriations act for fiscal 1955. Although planning grants of 5 million dollars were authorized in the 1954 act (see August-September JOURNAL, page 285), only 1 million dollars was appropriated. An authorized 10 million dollar fund for loans for planned public works (August-September JOURNAL, page 290) was cut to 1.5 million dollars and only 2 million of the 50 million dollar revolving fund for loans for public facilities (August-September JOURNAL, page 290) was approved.

A request by the Federal Housing Administration for 4.35 million dollars in supplemental funds for fiscal 1955 in order to handle the additional workload that will result from liberalized terms of the Housing Act of 1954 was cut to 1.6 million dollars. Meanwhile, the National Association of Home Builders reported a steadily mounting back-log of appraisal requests in FHA offices, even before the full impact of the 1954 act is being felt, and predicted that with the cut in appropriations the situation will worsen.

75 MILLION DOLLARS APPROVED FOR MILITARY FAMILY HOUSING

Family housing for military personnel up to a total cost of 75 million dollars was authorized in the supplemental appropriations act for fiscal 1955 passed by Congress shortly before adjournment. The Department of Defense will be responsible for construction of the housing but the funds cannot be used unless the Secretary of Defense certifies that it is not practical to build the needed units under the Wherry Act. Under the Wherry Act, private builders erect housing for military personnel near defense installations, financed with mortgages insured by the Federal Housing Administration.

The 75 million dollar fund approved in the appropriations act was a cut of more than 100 million dollars from that authorized in the law that provides for the family quarters. Under that law, also passed shortly before adjournment, $175 million was authorized for construction of 11,967 units and 15 million dollars for procurement of 5000 trailers to be used as family housing. The law permits construction of 250 units that have 2100 square feet of floor area, with the remainder restricted to 1250 feet and an average of 1080 square feet.

SENATOR MAYBANK, LONG-TIME PUBLIC HOUSING ADVOCATE, DIES

Senator Burnet R. Maybank, 55, long-time leader in the Senate for public housing legislation, died early in September of a heart attack. As chairman of the Senate Committee on Banking and Currency under the Democratic administration, Senator Maybank was responsible for steering the Housing Act of 1949 and other housing legislation through the Senate. In the present administration he was one of the strongest fighters for the public housing program.

He had been a member of the Senate for 13 years and was a former governor of South Carolina.

FHA ACTS TO AID URBAN RENEWAL, ARCHITECTURE, MINORITY HOUSING

Creation of a new division of slum clearance and urban renewal, establishment of a program to improve housing design standards, and adoption of a program aimed toward more open occupancy in housing developments were announced by the Federal Housing Administration in July and August.

Loder L. Patterson, Jacksonville, Florida will direct FHA's division of slum clearance and urban renewal, set up to administer the special provisions in the Housing Act of 1954 that offer special financing terms for housing in urban renewal areas (see August-September JOURNAL, page 269). Mr. Patterson formerly was a consultant in administrative law.

An architect, Neil A. Connor, formerly of Boston, has been appointed

WHAT! Modern plastic tile flooring in my low-budget homes?

YES! MATICO ARISTOFLEX IN LOW-COST STANDARD GAUGE

Here's a real tonic for new home sales! Aristoflex vinyl-plastic flooring not only serves as a powerful PLUS selling aid with the vinyl-minded buying public . . . but keeps your budget in line, too.

And these are the reasons. In standard-gauge thickness it's comparable in price to grease-proof asphalt tile . . . in beauty and durability, it's a real eye-opener to prospective home buyers, as only modern vinyl-plastic can be. The advantages are many. Since Aristoflex is vinyl-plastic from top to bottom (no felt backing!) it can be used on, above or below grade. The smooth, non-porous surface resists acids, alkalis, greases and fire. The radiant colors and marbleization go clear through each tile. And from the builder's standpoint, Aristoflex saves labor costs, because it lays in easily, requires less handling by the mechanic. Also available in ⅛" thickness. Look into MATICO ARISTOFLEX today. Write for full details.

QUALITY CONTROLLED

MA·TI·CO TILE FLOORING

Guaranteed by Good Housekeeping

Dept. 16-10

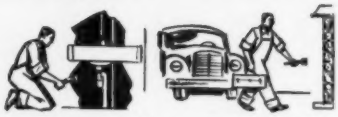
MASTIC TILE CORPORATION OF AMERICA

Manufacturers of: Aristoflex • Confetti • Parquetry • Asphalt Tile • Cork Tile • Plastic Wall Tile

Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

3B9A

Clogged Drains?



Saves Torn-up Plumbing Saves on Outside Help

HYDRAULIC WATER RAM

(Can pay for itself in one application)
Enjoy 30 Day FREE TRIAL!

Why lose time, suffer inconvenience, waste dollars on needlessly costly plumbing service? The Hydraulic Water Ram clears severest blocked drain lines and sewers in minutes. No chemicals, no snakes, no electric cables, no pushing through. Saves costly outside help, or expensive torn up piping. Uses IMPACT, a basic scientific principle of POSITIVE HYDRAULIC POWER. Shatters hard grease, debris, other blockage into fragments easily flushed down to main. Works perfectly, VENT OR NO VENT! Services up to 6" pipe. Works perfectly on all types of clogged toilets, sinks, sewers, etc. Can pay for itself in a single application. Nothing to wear out. Good for a lifetime. Thousands in use, including over 3,000 in government agencies. You risk nothing. Write for details, or how to get free 30 day trial at our expense.

Write for Information, Prices, Details of Free Trial Offer!

HYDRAULIC MANUFACTURING CO.
DEPT. JH10, KIEL, WISCONSIN

PAINT IS AN IMPORTANT PART OF THE PLAN...
Porcelite
PAINTS & ENAMELS
For many years this company has supplied High Quality paints for both the initial and the maintenance painting of some of the East's largest Housing Projects and Office Buildings. Why not get full details of why THOMSON-PORCELITE products are America's Standard of Quality . . . there is a reason!
THOMSON-Porcelite PAINT CO., PHILA. 6, PA.

to the new position in FHA of director of architectural standards. He is to assist in a revision of FHA minimum property requirements, one objective of which, FHA Commissioner Norman P. Mason said, is to give recognition in the amounts of FHA insured mortgages to quality construction and to the use of quality products. Another objective, he said, will be to encourage improvements in the design of dwellings on which there are FHA insured mortgages.

The program to encourage open occupancy housing projects is built around reorientation and education of all FHA personnel so that they will give every assistance to persons trying to make open occupancy housing available, Mr. Mason said. He also said that the FHA will take active steps to encourage the development of demonstration open occupancy projects in suitable key areas.

HHFA RESEARCH DIVISION WINDS UP AFFAIRS AND CLOSES SHOP

Housing research, as far as the Housing and Home Finance Agency is concerned, officially went out of business early this summer. Since 1953, when Congress gave the division of housing research of HHFA $125,000 and orders to liquidate itself no later than April 30, 1954, it has been winding up as many studies as it could that were already under way.

The housing research division was authorized under the Housing Act of 1949 and in the more than four years of its existence launched 89 separate research projects. Nearly all of the research work was done under contract with universities and private research organizations. Twenty or more of the reports of the research work have not been published because of lack of funds.

Projects undertaken during the division's tenure ranged over a wide variety of housing subjects, such as economics, finance, materials, design, markets.

ADVISORY COMMITTEE ON URBAN RENEWAL APPOINTED BY HHFA

A 21-man advisory committee on urban renewal has been appointed by Administrator Albert M. Cole of the Housing and Home Finance Agency and held its first meeting early in September in Washington to consider various aspects of requirements and procedures for the program as set up in the Housing Act of 1954. William L. Slayton, NAHRO assistant director, is a member of the committee.

All of the committee members were chosen for their long experience in fields vital to the new urban renewal program and are from the executive staffs of professional, industry, public administration, and public interest organizations. James W. Follin, director of HHFA's division of slum clearance and urban redevelopment, is chairman.

Although no definite schedule has been established for meetings, Mr. Follin said that the committee would meet at frequent intervals.

MORE VETS DIRECT HOME LOANS AUTHORIZED; PROGRAM EXTENDED

An additional 150 million dollars was authorized for the direct home loan program for veterans, which is administered by the Veterans Administration, before the 83rd Congress adjourned. The act also extended the program to June 30, 1955. To date, 425 million dollars have been authorized for the program.

FOR RESIDENTIAL AND MULTIPLE DWELLING INSTALLATIONS

USE P&S®

SWITCHES • OUTLETS
ALABAX® FIXTURES

Install P&S Duplex Outlets

Designed for Easy Wiring

P & S 1560

Good

Parallel Slots, Single Grip Contacts. Narrow Ears. *Brown* 1560. *Ivory* 1560-I.

DESIGNED RIGHT

P & S 1565

Better

Parallel Slots, Single Grip Contacts. Plaster Ears. *Brown* 1565. *Ivory* 1565-I.

BUILT RIGHT

P & S 1570

Best

Parallel Slots, Double Grip Contacts, Plaster Ears — Meets Federal & REA Specs. *Brown* 1570. *Ivory* 1570-I.

PRICED RIGHT

Install P&S Switches

Designed for Easy Wiring—for Hard Usage Year after Year

Good

Porcelain Cup Type, Non-T-Rated With Narrow Ears: *Brown* S.P. 4301, 3-W 4303. *Ivory* 4301-I, 4303-I. With Plaster Ears: *Brown* S.P. 5301, 3-W 5303. *Ivory* 5301-I, 5303-I.

P & S 5301

Better

Totally Enclosed Plastic, with Plaster Ears, Non-T-Rated. *Brown* S.P. 1871, 3-W 1873. *Ivory* 1971, 1973.

P & S 1871

Best

Totally Enclosed Plastic, with Plaster Ears, T-Rated. Meets Fed. Spec. W-S-896. *Brown* S.P. 7301, 3-W 7303. *Ivory* 7301-I, 7303-I.

P & S 7301

Install Alabax Porcelain Lighting Fixtures

Thousands of Alabax Fixtures have been installed in Public Housing. One of the most popular fixtures for this purpose is illustrated. Note, design will not permit clothesline to be attached to fixture.

AL-2108-13

All Alabax fixtures are made of highest quality porcelain — will not change color — will not rust — always look new — are as easy to clean as china plates.

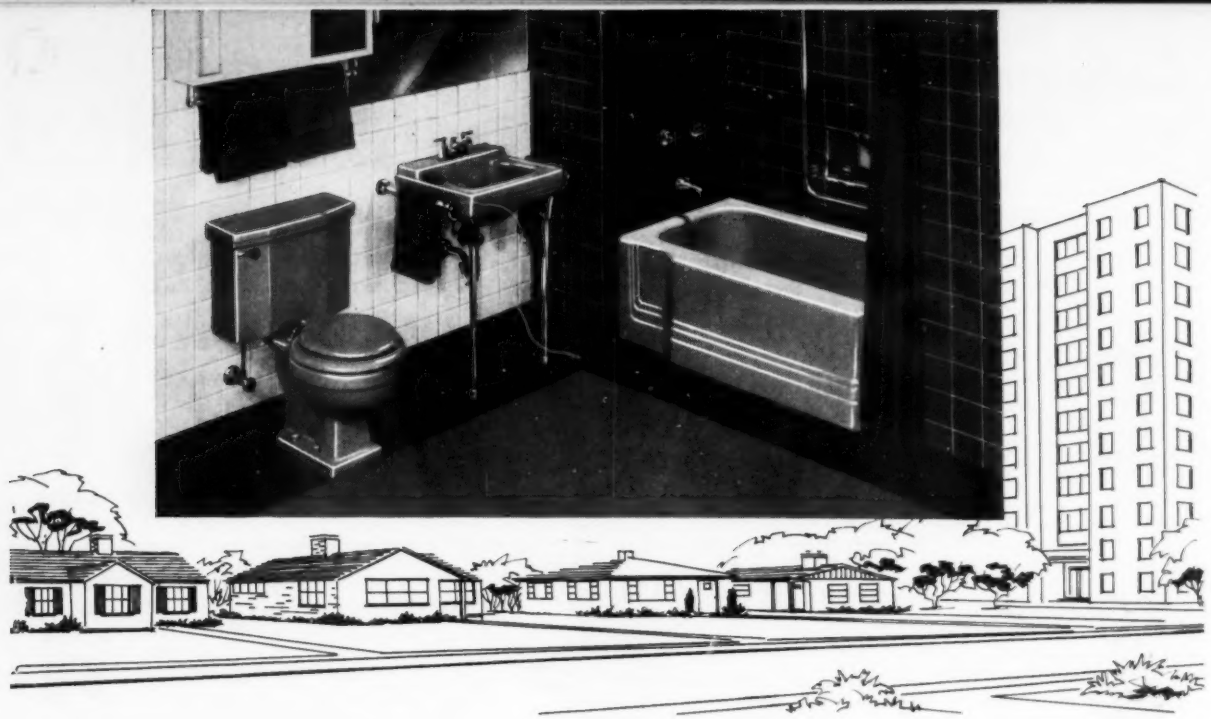
All P&S products are quality products — the result of experienced engineering, precision manufacturing, rigid inspection and constant testing. When you use P&S, you can be sure of dependable, trouble-free installations that will give years of service.

Devices illustrated are recommended for residential and multiple dwellings where price is a factor. Find out about the complete P&S line of first quality wiring devices and Alabax Porcelain Lighting Fixtures. Write now for Catalogs.

Dept. JH

PASS & SEYMOUR, INC. SYRACUSE, N. Y.

OFFICES: 71 Murray St., New York 7, N. Y. • 1229 W. Washington Blvd., Chicago 7, Ill.
In Canada: Renfrew Electric & Refrigerator Co., Ltd., Renfrew, Ont.



To enhance the value of your housing project, install

AMERICAN-STANDARD PLUMBING FIXTURES

● You can make your properties more valuable . . . insure greater pride on the part of tenants . . . by providing the same beautiful, top quality bathroom fixtures you yourself would like to have. American-Standard offers you the widest selection of competitively priced fixtures available anywhere. Yet, despite their moderate cost, American-Standard fixtures are second to none in smart styling, enduring good looks, and quality construction.

AMERICAN-Standard
BATHROOMS

American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

special thanks

NAHRO's Technical and Maintenance Section sponsored this special issue of the JOURNAL. Section Chairman William Schlenke assumed overall responsibility for its planning and an editorial committee headed by George J. Schwank of the New York City authority reviewed the major articles for technical accuracy. Serving with Mr. Schwank were Wayne H. Laverty, Cleveland, and two other New York authority staff members, Daniel Metliz and Samuel Ratensky. For additional special thanks, see page 317.

WILLIAM SCHLENKE

GEORGE J. SCHWANK

IT'S THE REAL THING . . .

In the housing business as carried on by the readers of the JOURNAL OF HOUSING, there is a lot of talking that must go on, a lot of theorizing and speculating, a lot of reading and writing of laws, a lot of seeking and studying of facts. We tend to get lost now and then in all this paper work, this planning and proposing, and forget that, over the past 20 years, we have created a 3 billion dollar finished product—a physical entity, a reality that can't be escaped.

The reality with which we are faced are the 500,000 structures that we have built in the low-rental program over the past 20 years—and the additional thousands of structures that continue to go up annually. Another reality we cannot escape is that every year we are spending some 50 million dollars to clean and paint these structures, to repair them, to replace worn parts and equipment, to heat and light them, to do everything possible to extend their life into—and beyond—the year 2000.

When we face this reality, we know that we are dealing with many ageless laws of the physical sciences—and also with the hundreds of new physical forces that our growing scientific knowledge is putting at our disposal. In this special issue of the JOURNAL, an attempt has been made to let the physical scientists who are at work in housing state their case and pose some of their problems to the social scientists who are doing a job in this field—those who concern themselves with matters of human relations, of aesthetics and philosophy. The goal is to have all of us sense the reality of the problems we find in our 3 billion dollar inventory of stone and steel, plaster and cement, lumber and glass: *real things* that are the responsibility of all of us in the field. We should understand the laws that go into their creation and that must govern their care.

A CONTRACTOR

suggests some ways to cut public housing construction costs

MOSES FREEDMAN
Manager, Standard Construction Company, Washington, D.C.

It is seldom, indeed, that a contractor's representative has an opportunity to convey a few words of advice to the officials of the public agencies in this field of housing and redevelopment. Those of us in the construction industry who have had the occasion to build public housing projects have enjoyed many intangible benefits thereby but we cannot deny having noted areas where substantial improvements could be made. Specifically, we have observed a lack of standardization of items requiring maintenance, over- and under-specification of numerous items, infrequent use of contractor's options, unnecessary complexities introduced in bidding documents, failure of plans to comply with local building codes, requirement that contractor furnish items of equipment that could be more economically purchased by the authority, excessive requirements in "special conditions."

Lack of Standardization

It is certainly not desirable to so standardize the structures and site plans for public housing projects that their distinguishing characteristic becomes their monotony: an array of buildings crying out against a lack of variety and good taste. However, standardization of numerous items would undoubtedly lower initial project cost—and certainly cost of operation. For example, stock size medicine cabinet vs. type with open shelf; metal door bucks within dwellings vs. wood jambs and casings; flush doors vs. panel interior doors; oil paints vs. flat paints; key-in-knob lock sets vs. cylinder mortise lock with latch set; linoleum vs. asphalt tile in bathrooms; wood vs. metal clothes poles; etc. Further, window types could be widely different but the sizes of glass panes for replacement should be stock.

Standardization, as long as it is not overdone, is a sign of maturity and will tend not only to reduce maintenance cost but to keep down bid prices as well.

Over- and Under-Specification

The sins of over- and under-specification seem to go hand in hand. It is frequently seen that the specification writer who overdoes the job on certain items suddenly finds it necessary to become very skimpy in specifying elsewhere for the same job. This lack of balance can be corrected in a preliminary review of contract documents. Here are some illustrations of over-specification: a two page description of the key cabinet, three pages on metal toilet partitions, six pages on the incinerator. The writer who under-specifies frequently neglects to give full consideration to providing fully waterproof slabs, tight exterior walls below grade, and a first class job of roofing and flashing. Surely the latter items are more important than the former and should be given proper weight.

Contractor's Option

Wherever possible, it is suggested that there be introduced into contract documents options that permit the contractor to make his choice between two different but equally satisfactory materials or methods. The contractor is certainly capable of knowing which of two equally satisfactory alternatives is the less expensive and the local authority ought to benefit from his knowledge. Some possible options are: aluminum vs. wood double hung windows, steel vs. precast concrete lintels, conventional closet doors vs. full height sliding units, prefinished vs. job finished flooring.

Unnecessary Bidding Complexities

Full appreciation of the difficulties that attend the preparation of a bid is impossible except for those who have undergone the ordeal. The time allowed for estimating a job hardly ever seems enough; hence the following complicating elements should be avoided: alternate bids on the basis of different sections of the project, alternate bids covering change in certain materials, and the issuance of numerous cryptic addenda shortly before bid opening.

Code Compliance

It is indeed regrettable that from time to time architects hired for a project turn out plans that fail to conform with local building codes. This situation arises when the architect allows insufficient time for review of plans against the code—or because he fails to coordinate his schedule with that of code officials. A general attitude of "let's get the job out now" is the big reason for neglecting to do the code checking job. Bringing contract documents around to the point of conforming with the code is frequently a costly and painful task. It is certainly an unnecessary one.

Furnishing of Equipment

It is a wise and mature housing authority that purchases its equipment instead of including it in the construction contract. Whenever equipment is included in the contract, the contractor must not only include the cost but an allowance for overhead and profit, which may increase the cost to the authority by as much as 15 per cent. Some equipment items that can be purchased by the authority are: refrigerators, ranges, clothes drying reels, playground equipment, fencing.

Special Conditions

"Special conditions" are a part of contract documents that generally add sizeable cost items to the contractor's estimate . . . but do not reflect any permanent gain to the authority. The type of excessive requirements often included in "special conditions" clauses that can be minimized are elaborate and large construction offices, expensive project signs, project photographs, and temporary project fencing.

TREATING CONTRACTORS AS PARTNERS PAYS OFF, says the New York City Housing Authority. It meets with contractors associations to set policy matters; holds meetings with prospective bidders to answer questions; prequalifies bidders; makes plans and specifications complete—with the result that costs are low.

AN ARCHITECT

suggests some ways to overcome design, construction defects

FRANK J. DUANE
Architect, A.I.A., Washington, D. C.

"Buildings with their equipment and the areas about them, in addition to being well suited to their purpose, shall be planned for health, safety, efficient operation and economical maintenance. . ." This quotation is from the Obligations of Good Practice of the American Institute of Architects.

The exercise of this obligation in the design and planning of a housing project requires minute examination of all the details of planning and construction, as well as a sound understanding of normal management-maintenance operations. It is the purpose of this article to call attention to items of design and construction for two- and three-story structures that are frequently neglected. Abnormal maintenance operations caused by generally poor design and construction will, of course, put the project budget out of balance by requiring wasteful, troublesome, and expensive repairs that serve no useful purpose other than replacement of an originally poor design.

Because of the interrelation of the objectives of the designer and the manager of a project, we regret there is little or no contact between the two. Certainly the designer could advise the manager what his design objectives are and give him useful operating guidance. Later, the manager could inform the architect what difficulties he may be experiencing with certain features of the design as an aid in the development of future projects.

In general, managers want the most durable and expensive materials used for the properties they supervise and take a dim view of limitations on construction costs and of governmental bans on the use of certain materials. The feeling is frequently conveyed by managers that the use of anything less than the best is a serious mistake on the designer's part. In most instances no explanation can be made that will dissipate this attitude.

A great store of experience has been accumulated by management on project deficiencies. Some of this information has been published in government manuals, not generally made available to architects. This article will not attempt to duplicate the information that has already been released in such publications or as standards but will confine itself to my individual and rather extensive experience in the design, construction, and maintenance of public housing projects. This experience has pointed up many areas that are frequently neglected and to which attention should be drawn. Excluded from the article are references to mechanical, electrical, and site work.

Entrances

Entrance platforms should be wide and deep enough to permit opening of screen doors without requiring the user to back off the platform or to huddle up in one corner. Platforms high enough off the ground to require a railing should, of course, be wider than platforms without railings, to permit proper securing of the top rail to the wall and to the platform. All above ground platforms should be closed up at the ends (cheek walls) for the same reason that it is not good practice to leave holes and crevices inside a dwelling unit. All platforms should be sloped to shed rainwater and be recessed into the building walls or otherwise secured thereto, since settlement is likely to occur in earth against foundation walls and a platform floating on exterior fill will surely drop and create a nasty condition at the entrance door.

Screen Doors

Screen doors are an excessively expensive maintenance item. For this reason, it is surprising that public housing standards do not require 1⅜-inch thick doors. Because of the careless, if not brutal, treatment given screen doors, it is essential that lower panels be reinforced with a wire mesh. Screen door holders or closers are so troublesome that we believe the old fashioned spring is possibly the best answer, with a chain at the head to prevent opening of the door more than approximately 90 degrees. Even with such precautions, however, tenants frequently will not fully close or secure a screen door in a storm and they can be ripped off or broken by the force of the wind blowing the door against the holder or against the hinge side of the door jamb. Screen doors should be hinged to the door jamb casing—not to the brick mold. The casing should, of course, be deep enough to provide at least a 3-inch clearance between the screen door and the entrance door, so that it will not be necessary to hollow out the screen door in front of the entrance door knob to permit closing of the screen door. Screen door latches should not be placed at the same height as the door knob for similar reasons.

Designers should be reminded that screen doors are frequently (though injuriously) left on the year round and that, therefore, screen door color and design are frequently more important than the color and design of the entrance door.

If door jamb type letter boxes are used, then a mail slot should be placed in the screen door to permit mail deliveries at a time when the screen door is locked.

Entrances

In general, entrance doors should have a roof or hood over them to protect them from the weather. Rain water from an entrance roof should not fall upon the entrance platform or steps.

The threshold at an entrance door should be specified and detailed to provide a minimum of ½-inch clearance from the floor to the bottom edge of the door or its weatherstripping. A tidy housewife may then place a mat or throw rug in front of the door to receive much of the dirt normally tracked into a dwelling. Less than ½-inch clearance will prevent the door from opening over a rug or will damage the weatherstripping.

Slabs on the Ground

With the increasing use of concrete floor slabs on the ground and the consequent great amount of experience gained with this type of construction, we have learned not to carry the floor slab through the wall and expose it on the exterior of the building. The slab edge should always be provided with insulation and stopped inside the exterior wall face to avoid objectionable condensation on the floor around the perimeter of the dwelling. We have also learned to be very careful with fill under floor slabs. In general, if more then 2½ feet of fill is required, the floor should be framed to be self supporting, independent of the fill. Because of improper placing and compaction of fill, floor slabs have been known to drop as much as 5 inches, causing serious and excessively costly repairs.

Crawl Spaces

Wood floor construction over earth crawl spaces has proven to be very unsatisfactory because it seems impossible to obtain full design, construction, and management compliance on all the requirements for the success of this building type. Factors that contribute to failure are: lack of adequate clearance between the wood floor construction and the ground; improper grading of the crawl space; no drainage of crawl space low spots; insufficient ventilation or impaired ventilation because tenants close vents; condensation; termites; improperly installed or insufficient insulation; and improper site surface drainage, permitting drainage from downspouts or roof eaves to collect against the building wall and eventually spread into the crawl space. On certain projects, floors have fallen into the crawl space because conditions such as those specified above have prevailed —the best possible example of either poor design or construction. Constant repair and policing is required to protect crawl space construction. It is better either to avoid it or to insist on all precautionary construction measures and be willing twice a year to enforce an order mandating tenants to keep crawl space vents open at all times.

Concrete Floors

Concrete finished floors have never proven satisfactory in the writer's opinion. Without a floor hardener, the floors dust and sand. With a floor hardener, the floor has an uneven blotchy appearance. The same is true with an integral cement color. Paint quickly wears in the path of travel and if the floor slab is on the ground, only rubber base paints will adhere properly.

Finished concrete floors require considerable care by the contractor because, first, a nearly perfect job of workmanship is required and, next, because the floor must be fully protected from damage during progress of construction work. Usually the last condition is the most difficult to meet, since the floor slab is used as a level plane table from which other operations start. A piece of masonry, a hammer, a board, or any one of a number of other items will, if dropped, frequently nick or scratch the floor. Plaster will stain it.

If a proper cost record were kept on measures taken to meet the above difficulties, it would be found that finished asphalt tile floors are less costly than some housing agencies believe.

Managers have, of course, found out how difficult it is to keep cement finished floors in good condition. Tenants will paint around the perimeter of rugs, making it difficult for the next tenant to use other than the same size rugs. The path of travel is in most cases clearly defined and does not look well.

Asphalt Tile Floors

To date, asphalt tile is the most satisfactory finish used over a concrete floor slab. Its cost is comparatively low, maintenance is easy, and its wearing possibilities very good. It may safely be installed over a ground floor slab. Early projects built under the Public Works Administration and the United States Housing Authority used "A" color group asphalt tile: the dark color range. These floors are unsatisfactory because footmarks and dust show immediately. In recent years, "B" group has been used, which helps a little; however, if "C" or "D" groups were installed, the appearance of the floors would be very greatly improved.

Fill and Slab Settlement

Occasionally a contractor will invent a simplification of a detail with disastrous results. We recall a case where wood partitions were used over a concrete ground floor slab. In this case, the 2-inch x 4-inch base plate for the partitions was set into the concrete slab instead of being placed on top of the slab as detailed. Also the plate was continued across door openings. So far as we know, this project is still struggling with the correction of the damaging conditions caused by this fatal "improvement." The slab, being weakened at the line of partitions by the sunken plate, cracked and settled. Termites, present because top soil had not been removed and poorly compacted fill had been placed over the top of it, had a field day—coming up through the cracks, the wood plates, the studs, and finally the rafters. All the base plates became subject to dry (wet) rot. At inside door openings, asphalt tile, having no support over the decayed plate, cracked. The correction of such conditions is outrageously expensive and chargeable to a complete failure of inspection and construction work.

Plaster on Masonry Walls

During the program of the PWA housing division, a large proportion of projects were plastered directly on the outside masonry wall over a thin coating of dampproofing. In this case, architects were ordered by the government to specify and detail the plastering direct, regardless of their strenuous objections—notably in the Boston area. Experience has since shown the architects were right. If the total cost were calculated of the ameliorative measures required to try to correct this entirely unsound decision, it would conservatively run into millions of dollars—and the condition is still not basically corrected.

To be brief, the difficulties are, first, the breaking of the bond between the plaster and the dampproofing, so that large areas of plaster are free standing; second, water penetrates through the masonry wall, especially at the brick headers, and gets behind the plaster or saturates it; third, condensation is a serious condition on walls that are plastered direct; fourth, paint is ruined; and fifth, musty odors and moldy conditions are apparent. It has been adequately, though expensively, shown that masonry walls must be furred before plastering and that such furring is required in all but the driest areas of the United States.

(Continued column one, page 332)

HOW DID THE OTHER FELLOW DO IT?

Swapping experience—exchanging facts and figures—taking a look at how the other fellow did a job similar to our own.That's a method for making progress, for bettering the record that has proven itself time and again.

On this theory, the following pages present facts, photographs, floor plans, and figures on 14 housing developments. No evaluative comments are included in the presentations—no comments that cite one project as "best in its class"—another as having achieved the lowest per room or per unit cost figure in its area—another for having attained new highs in livability characteristics. These 14 projects were chosen as being *typical*. They were selected by Silver Tesone of the Public Housing Administration in consultation with the chairman of NAHRO's Technical and Maintenance Section, William Schlenke of Pittsburgh, as being representative, first, of four major building types and, second, of various geographical areas of the country. The building types presented include:

4 projects featuring one-story twin and row houses
5 projects featuring two-story row houses and apartments
2 projects featuring three-story apartments
3 projects featuring multi-story apartments

Project locations range from the semi-tropics of Puerto Rico to the Pacific Northwest. Uniform sets of facts are included in all 14 presentations on building and site costs, room ratio, density, land coverage, structural materials.

A word of warning is offered about comparing cost figures. It is pointed out that even for buildings of the same size and type of construction, it is necessary to take into consideration differences in labor rates, the availability of local labor, as well as the not so tangible item of the amount of construction work in a particular locality at the time bids were taken. As an example, one local authority had two projects made up of identical buildings designed by the same architect and awarded to the same contractor. The projects were advertised for bidding 16 months apart, with the result that dwelling construction cost varied 25 per cent. It is pointed out that part of this difference in cost may have been due to a slight increase in wage rates in the interval or to limited availability or increased costs of material but that the greater portion of the difference was directly attributable to the volume of local construction work being done at these periods.

The cost figures shown in the persentations are based on contract award figures and include a contingency amount as well as an amount for initial management renting expense.

So—here is your chance to see "how the other fellow did it"—to see what kind of one-story structures he was able to build, what land coverage he achieved, what his site improvement costs were. Here's a chance to compare room layout patterns for a variety of building types; to take a look at the variety of structural methods employed. It is the JOURNAL's hope that through study of these 14 presentations, every reader will see a way to achieve a design improvement, a cost cut, a structural innovation on the next project developed by his authority.

ARMSTRONG HOMES

Rocky Mount, North Carolina — One-story twin and row houses

Local building practice and living habits dictated the use of one-story buildings, which offer a maximum amount of privacy for project living. Most of the units are in "twin" buildings, containing only two dwellings each. A few of the dwellings are in row house structures.

Costs average about $8500 a unit, a cost partly achieved by the Housing Authority of the City of Rocky Mount through use of a vacant site. Lack of any centrally concentrated slums, which is characteristic of many communities in the 25,000 to 50,000 population range, also influenced the choice of a vacant site.

BUILDINGS—SITE

One-story twin houses—178 dwellings
One-story row houses—32 dwellings
Total dwellings—210
Room ratio—4.85 for 1,019 rooms
Density—9.1 families per net acre
Land coverage—20 per cent
Bid opening date—December 2, 1952
Foundations—8-inch by 16-inch concrete footing, brick wall
Walls—brick masonry
Floors—2-inch concrete on 4-inch structural tile
Roofs—pitched, wood trusses, asphalt shingles
Heat—individual oil fired space heaters

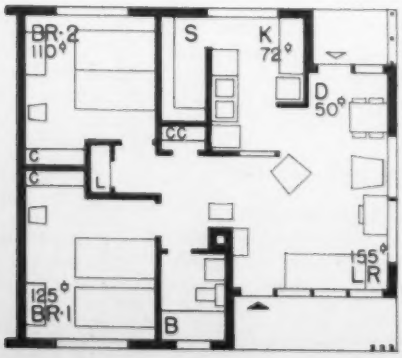
COSTS

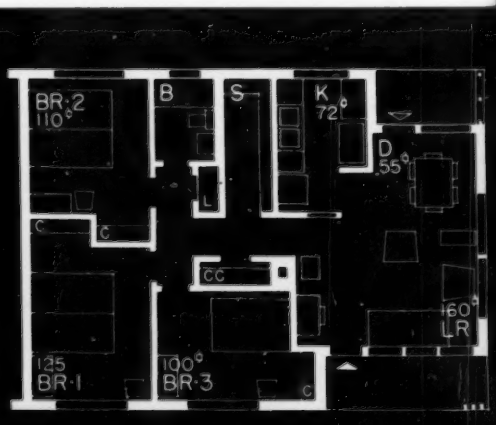
Per dwelling:

Overhead, interest, initial operating deficit, and planning—$726
Site acquisition (vacant)—$145
Site improvement—$1,202
Dwelling construction and equipment—$5,764
Nondwelling construction and equipment—$212
Total development—$8,444*

Per room:

Dwelling construction and equipment—$1,247*
Total project—$1,773,343*
*Includes contingency





ANACUA VILLAGE

Mission, Texas — One-story twin and row houses

Maximum maintenance economy and pleasing appearance were the reasons that the Housing Authority of the City of Mission, Texas decided upon one-story masonry buildings for its only project. All 80 dwelling units (of one-, two-, and three-bedrooms) are in 32 one-story twin and four-unit row houses.

The characteristics of the land—requiring a floating, solid cement base for the units—also had a hand in the decision to build one-story masonry-brick buildings. The administration building is of the same type of construction and is located at the entrance of the project.

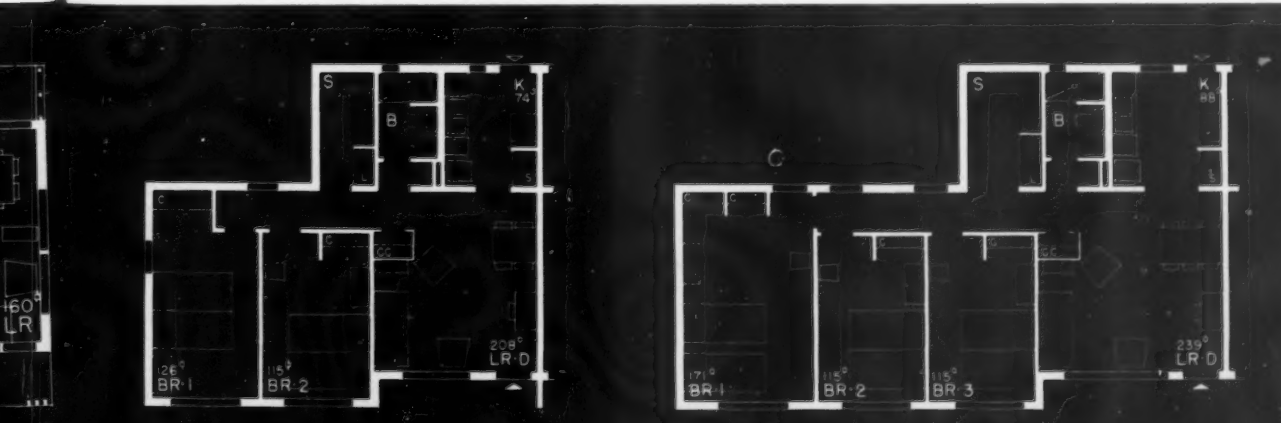
BUILDINGS—SITE

One-story twin houses—48 dwellings
One-story row houses—32 dwellings
Total dwellings—80
Room ratio—4.85 for 388 rooms
Density—8.9 families per net acre
Land coverage—23.24 per cent
Bid opening date—March 9, 1951
Foundations—concrete piers and reinforced concrete grade beams
Walls—brick cavity using 4-inch by 4-inch by 8-inch brick
Floors—concrete slab on 4-inch gravel fill
Roofs—precast concrete joists with 3-inch concrete slab, built-up roofing
Heat—convection type gas fired space heaters

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$868
Site acquisition (vacant)—$310
Site improvement—$1,086
Dwelling construction and equipment—$6,918
Nondwelling construction and equipment—$279
Total development—$9,938*

Per room:
Dwelling construction and equipment—$1,482*
Total project—$795,000*
*Includes contingency

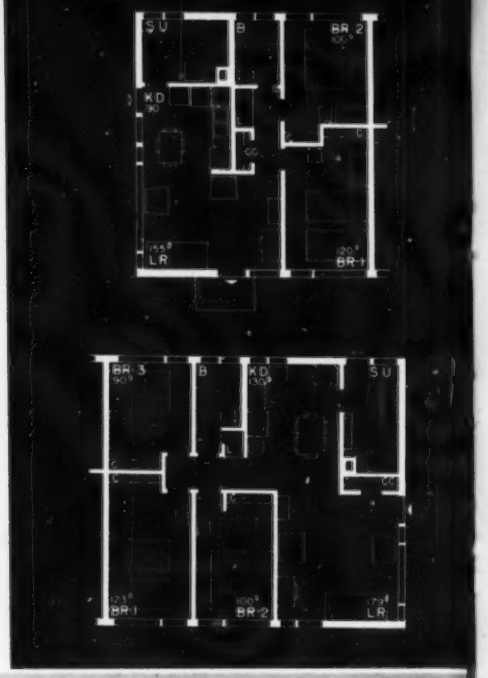


SUNNYSLOPE

Kennewick, Washington — One-story twin houses

Single family detached houses are the rule in Kennewick, Washington and the Housing Authority of the City of Kennewick had no desire to break precedent when it built its only low-rent development. One-story twin unit buildings fit in with the character of the surrounding houses and offer a great deal of privacy to the tenants. The type of construction was selected for its maximum economy.

Architecturally, as well as costwise, the project was considered so outstanding that it was selected by a jury of architects for presentation in the October 1951 JOURNAL OF HOUSING (see page 358 of that issue).



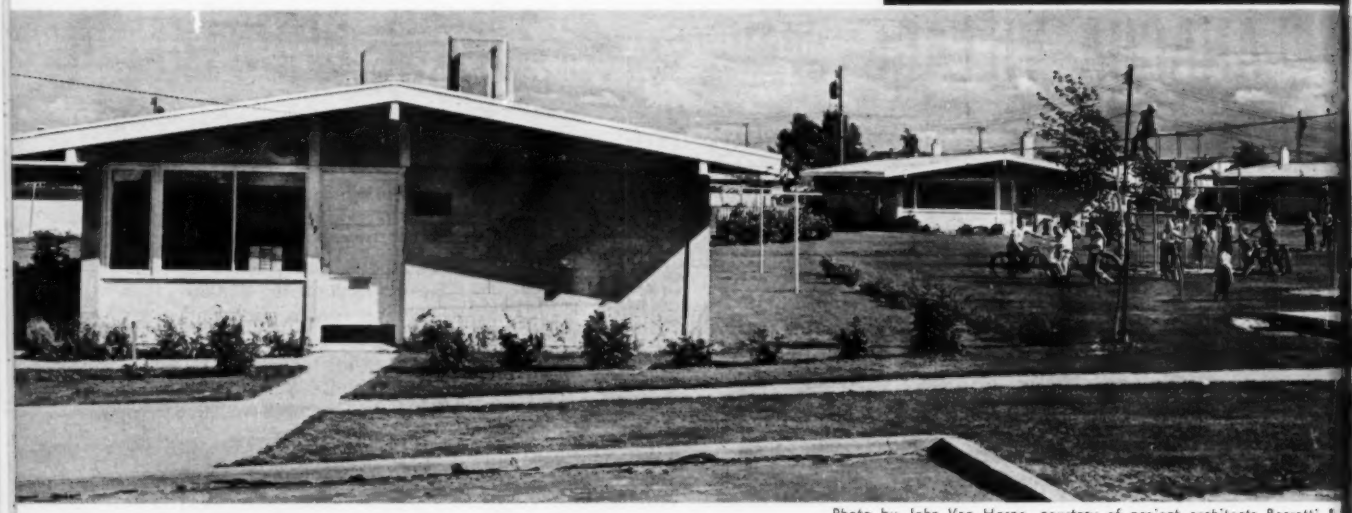


Photo by John Van Horne, courtesy of project architects Bassetti &

BUILDINGS—SITE

One-story twin houses—125 dwellings
Room ratio—4.67 for 584 rooms
Density—10.05 families per net acre
Land coverage—18.85 per cent
Bid opening date—June 19, 1951
Foundations—concrete walls
Walls—8-inch by 8-inch by 16-inch pumice blocks, half-inch waterproof plywood
Floors—concrete slab on 4-inch crushed stone fill
Roofs—pitched, wood with built-up roofing
Heat—oil fired forced warm air

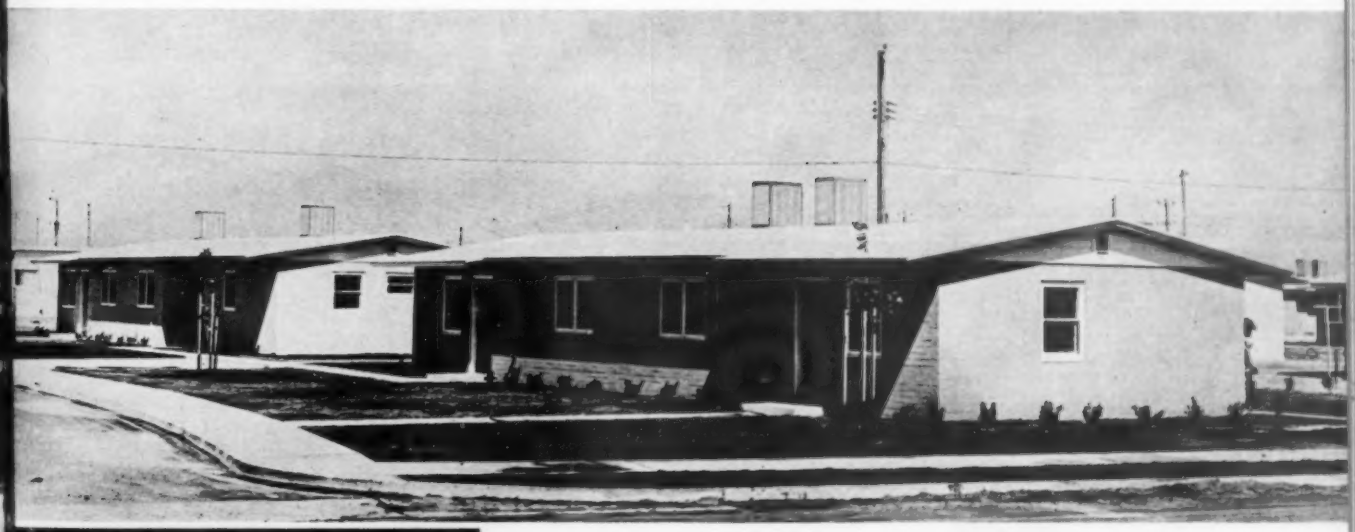
COSTS

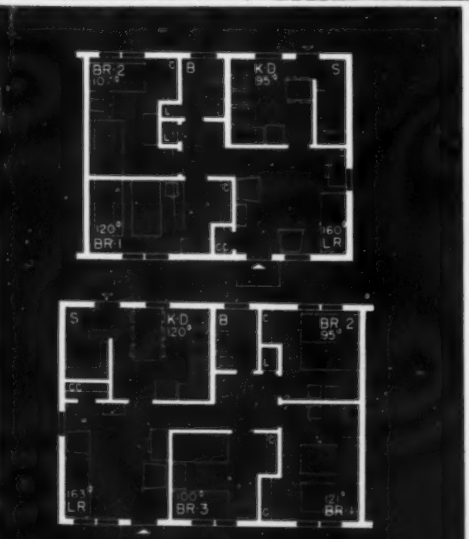
Per dwelling:
Overhead, interest, initial operating deficit, and planning—$906
Site acquisition (vacant)—$215
Site improvement—$880
Dwelling construction and equipment—$6,248
Nondwelling construction and equipment—$132
Total development—$8,811*
Per room:
Dwelling construction and equipment—$1,396*
Total project—$1,101,440*
*Includes contingency

MARBLE MANOR

Las Vegas — One-story twin houses

To help foster initiative, pride and responsibility among tenants in helping to maintain the project and as an incentive toward eventual home ownership, the Housing Authority of the City of Las Vegas built one-story twin houses for its only low-rent development. Tenants also have an opportunity to "express themselves" in gardens and plantings if the buildings are properly spaced to permit open areas, the authority believes, and children have a place to "flex their muscles."





COSTS

Per dwelling:

Overhead, interest, initial operating deficit, and planning—$1,012
Site acquisition (vacant)—$226
Site improvement—$1,395
Dwelling construction and equipment—$7,226
Nondwelling construction and equipment—$304
Total development—$10,660*

Per room:

Dwelling construction and equipment—$1,656*
Total project—$1,066,000*
*Includes contingency

BUILDINGS—SITE

One-story twin houses—100 dwellings
Room ratio—4.85 for 458 rooms
Density—10.5 families per net acre
Land coverage—22 per cent
Bid opening date—June 14, 1951
Foundations—concrete
Walls—8-inch masonry block; cement paint exterior
Floors—concrete slab on gravel
Roofs—pitched, wood, built-up roofing
Heat—gas wall heaters

EAST WASHINGTON APARTMENTS

Benton Harbor, Michigan — Two-story row houses

A desire on the part of the members of the Benton Harbor Housing Commission "to avoid the drab, barracks type buildings placed row after row upon the project site . . . and particularly to avoid the appearance that screams at each passing motorist 'this is a housing project!' " determined the building type for this project.

Variety of materials and textures in the exterior architectural treatment helped overcome a "look-alike" appearance. The use of split cedar fence to enclose drying yards and garbage cans and placement of these areas on the street side of the units, are features of the project for which it was selected for presentation in the October 1951 JOURNAL OF HOUSING.

BUILDINGS—SITE

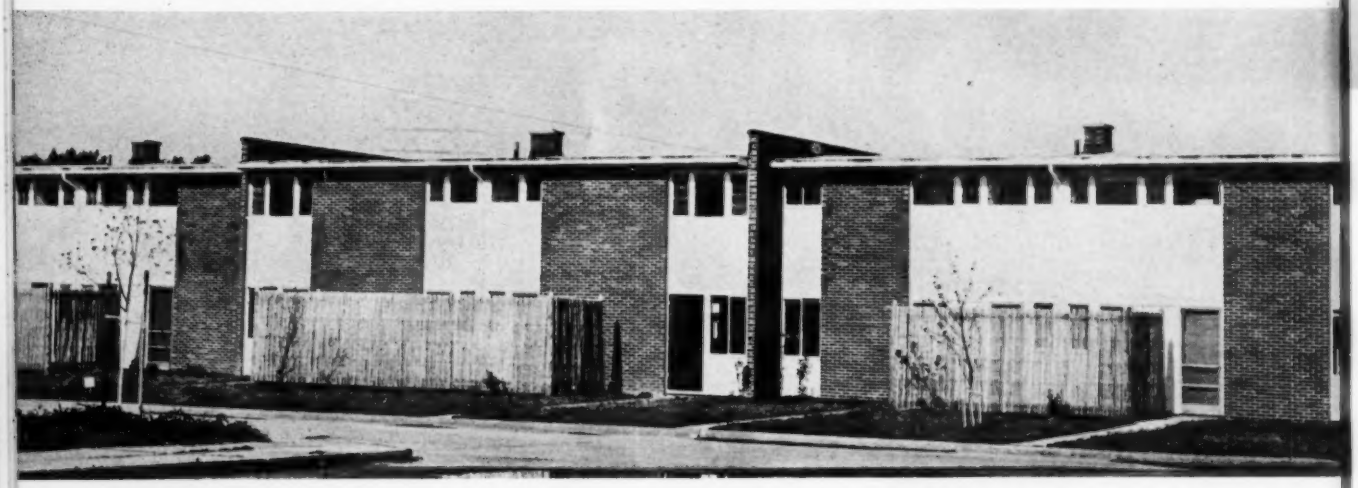
Two-story row houses—76 dwellings
Two-story twin flats—16 dwellings
Two-story twin house—2 dwellings
Total dwellings—94
Room ratio—4.84 for 455 rooms
Density—16.8 families per net acre
Land coverage—15.2 per cent
Bid opening date—December 21, 1950
Foundations—concrete footings, concrete walls
Walls—brick veneer and wood siding
Floors—4-inch concrete slab on 6-inch crushed stone; wood
Roofs—low pitch, wood, built-up roofing
Heat—Individual gas fired forced warm air

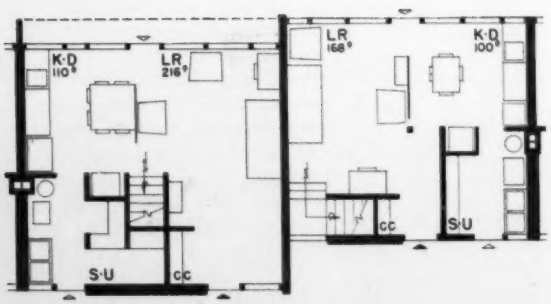
COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$1,075
Site acquisition (vacant)—$406
Site improvement—$883
Dwelling construction and equipment—$7,909
Nondwelling construction and equipment—$124
Total development—$10,893*

Per room:
Dwelling construction and equipment—$1,716*
Total project—$1,024,000*

*Includes contingency





DELGADO

Caguas, Puerto Rico — Two-story apartments

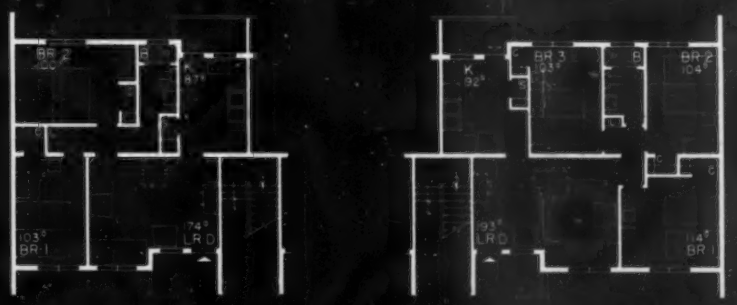
Predominant building type in the Puerto Rico Housing Authority's program is the two-story apartment structure, which was used for this project because it met the density requirements set by the Public Housing Administration and suited the topography of the site. The authority also believes it is the building type preferred by most tenants and that it is easily and economically maintained.

BUILDINGS—SITE

Two-story apartments—256 dwellings
Room ratio—4.72 for 1,208 rooms
Density—17.69 families per net acre
Land coverage—19.17 per cent
Bid opening date—December 15, 1950
Foundations—concrete
Walls—reinforced concrete
Floors—concrete slab on fill; reinforced concrete
Roofs—flat, reinforced concrete, mortar finish
Heat—none

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$558
Site acquisition (vacant)—$34
Site improvement—$845
Dwelling construction and equipment—$3,879
Nondwelling construction and equipment—$239
Total development—$5,831*
Per room:
Dwelling construction and equipment—$863*
Total project—$1,498,724*
*Includes contingency



IDA SPENCE HOMES

Covington, Kentucky — Two-story row houses

Maintenance problems resulting from common stair halls, stairs, and entrances in apartment buildings were eliminated when the Covington Municipal Housing Commission decided upon row houses for this project. Looking forward to the time when its tenants will be home owners, the housing commission views its tenant maintenance program, possible in row house buildings, as a training ground for home ownership.

Moreover, the smaller ground areas required for row house units made them a logical selection for a hilltop site without the sacrifice of courts or service yards.

BUILDINGS—SITE

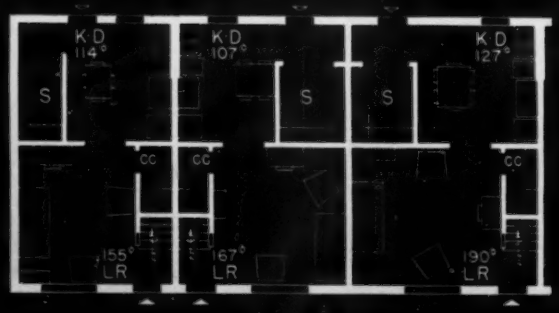
Two-story row houses—340 dwellings
Three-story row houses combined with two-story row houses—32 dwellings
One-bedroom flats in two-story row houses—28 dwellings
Total dwellings—400
Room ratio—4.8 for 1,920 rooms
Density—20.2 families per net acre
Land coverage—23.23 per cent
Bid opening date—March 12, 1952
Foundations—concrete walls on concrete footings; partial basements
Walls—brick veneer
Floors—concrete slab on 4-inch gravel; wood
Roofs—pitched, wood trusses, asphalt shingles
Heat—group plants, gas-fired forced hot water

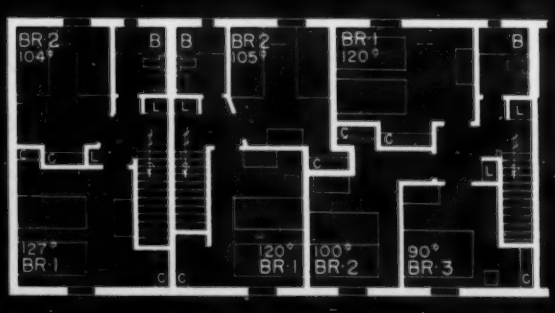
COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$813
Site acquisition (vacant)—$77
Site improvement—$2,293
Dwelling construction and equipment—$8,156
Nondwelling construction and equipment—$204
Total development—$11,658*

Per room:
Dwelling construction and equipment—$1,716*
Total project—$4,663,279*

*Includes contingency





McDONOUGH HOMES

St. Paul —

Two-story row houses

Variations in roof design and in use of exterior materials—stucco, brick, and wood siding—to minimize a possible institutional appearance has made these two-story row houses acceptable in a city that is predominantly one of single-family dwellings. Architects on the project for the Housing and Redevelopment Authority of the City of St. Paul provided another variation by adding one-bedroom "flats" to the ends of some of the buildings. All of the dwellings have full basements for laundry facilities and individual furnaces.

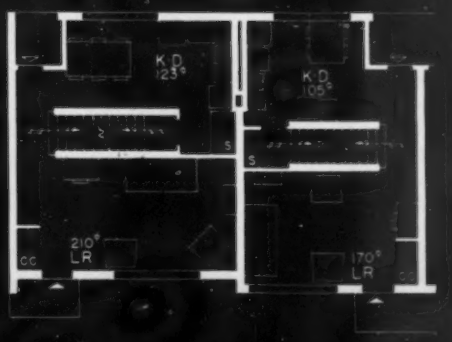
BUILDINGS—SITE

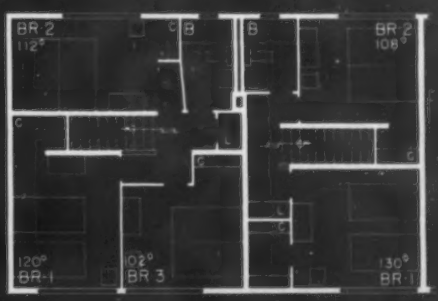
Two-story row houses—520 dwellings
Room ratio—4.67 for 2,432 rooms
Density—12.4 families per net acre
Land coverage—18.9 per cent
Bid opening date—September 19, 1950
Foundations—12-inch concrete block walls on concrete footings
Walls—combinations of stucco finished 8-inch concrete block, wood siding, and 8-inch brick
Floors—concrete slab
Roofs—pitched: wood trusses, asphalt shingles; flat: wood frame, built-up roofing
Heat—individual gas-fired gravity warm air

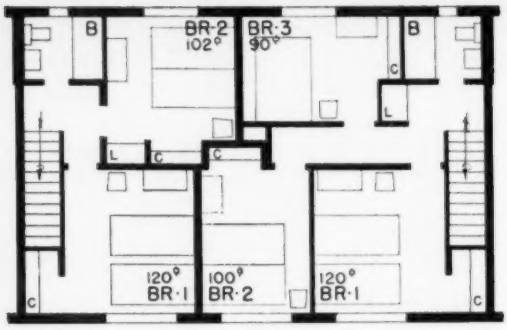
COSTS

Per dwelling:
Overhead, interest, initial operating deficit, planning—$758
Site acquisition (vacant)—$222
Site improvement—$1,355
Dwelling construction and equipment—$8,868
Nondwelling construction and equipment—$430
Total development—$11,645*
Per room:
Dwelling construction and equipment—$1,898*
Total project—$6,055,315*

*Includes contingency

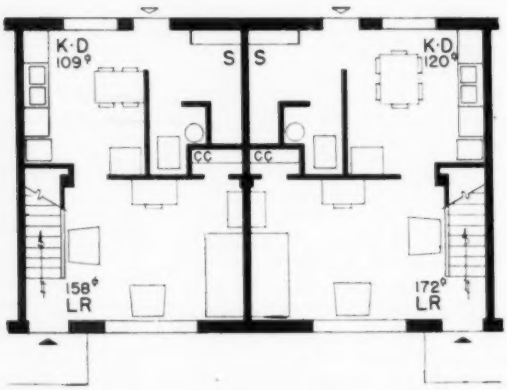






SANGRE DE CRISTO

Pueblo — Two-story row houses



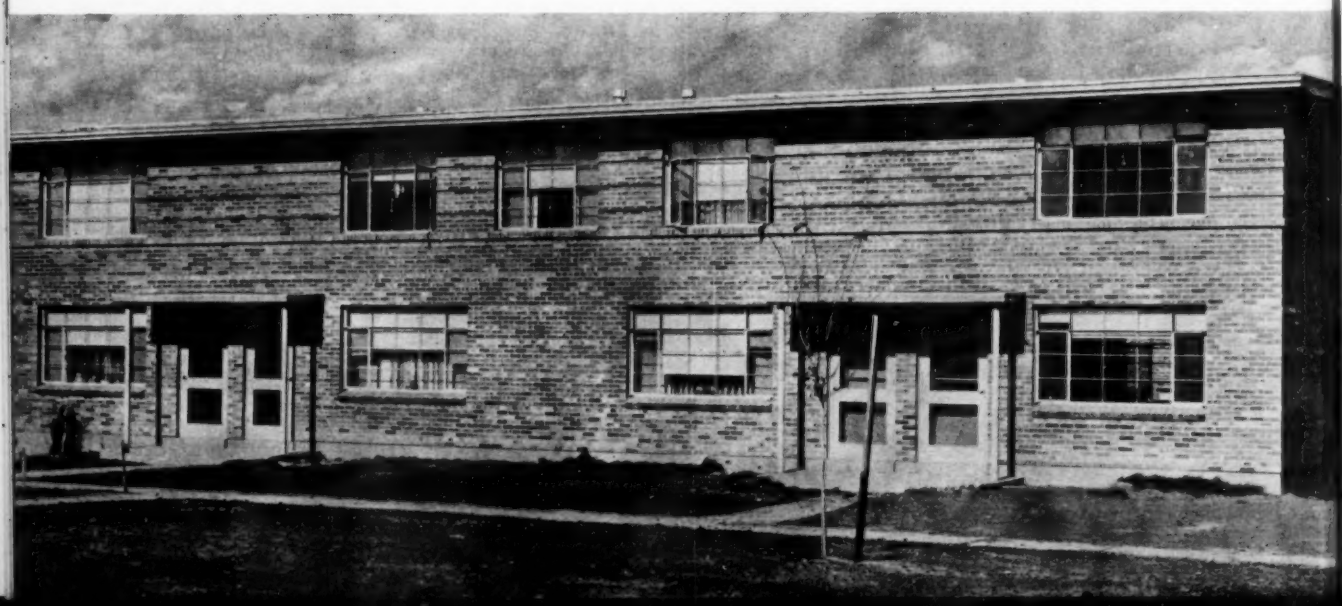
Economy of construction, low maintenance costs, and livability and privacy resulting from row house type buildings were the reasons that the Housing Authority of the City of Pueblo selected them for its only low-rent project. Although some of the buildings have only one story, the site and the number of dwellings required that the majority of them have two stories.

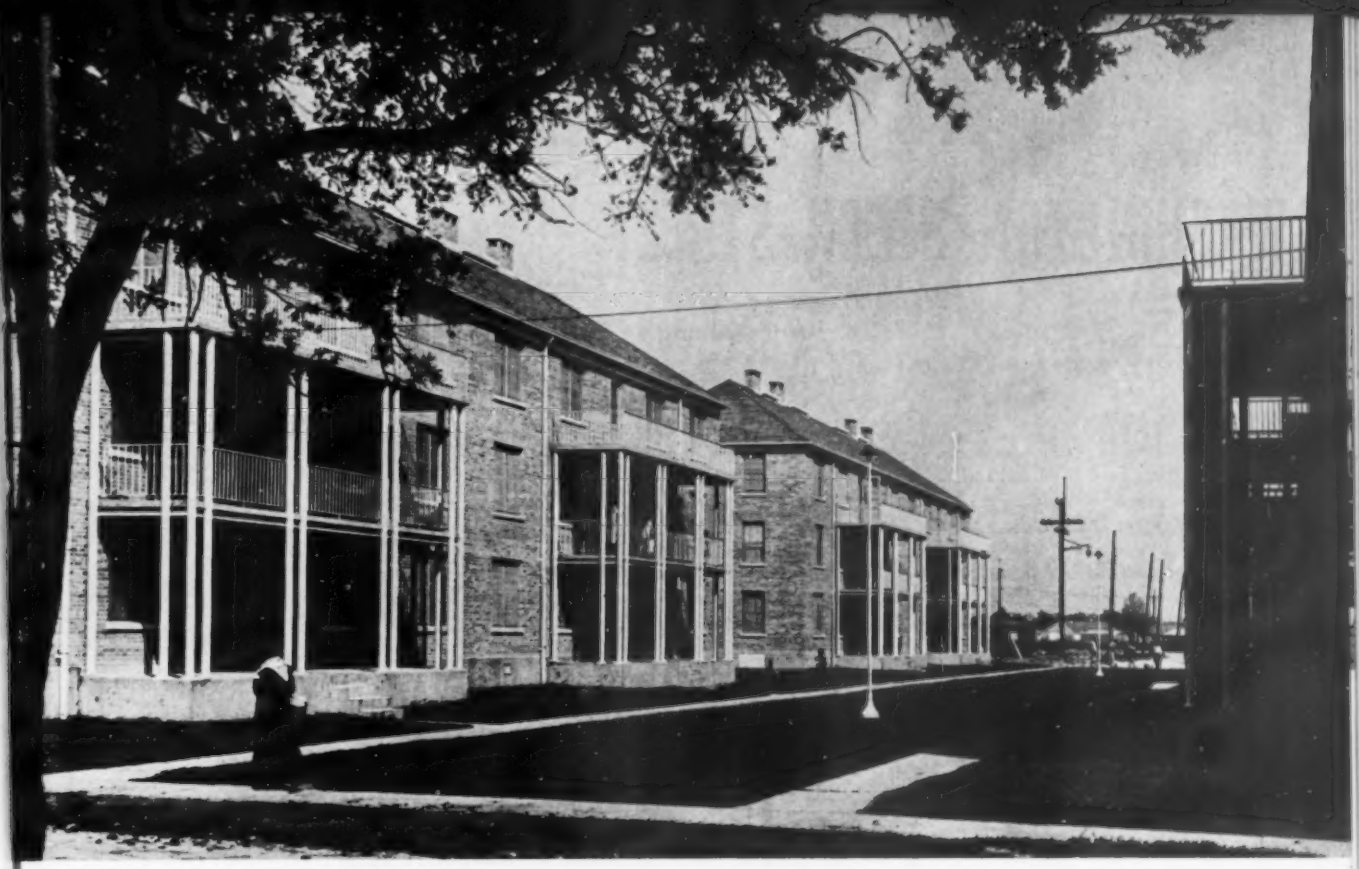
BUILDINGS—SITE

Two-story row houses—183 dwellings
One-story row houses—41 dwellings
Total dwellings—224
Room ratio—4.84 for 1,076 rooms
Density—17.95 families per net acre
Land coverage—21.21 per cent
Bid opening date—March 4, 1952
Foundations—concrete piers and reinforced concrete grade beams
Walls—brick face, pumice concrete block back-up
Floors—concrete slab
Roofs—low pitch, wood, built-up roofing
Heat—individual gas fired, forced warm air

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$804
Site acquisition (vacant)—$67
Site improvement—$515
Dwelling construction and equipment—$7,223
Nondwelling construction and equipment—$191
Total development—$9,240*
Per room:
Dwelling construction and equipment—$1,579*
Total project—$2,069,860*
*Includes contingency





ST. BERNARD AVENUE EXTENSION

New Orleans —

Three-story apartments

Three-story construction was used by the Housing Authority of New Orleans for this project because it produced the desired density on a high cost urban site and at the same time blends with the city's residential pattern. It also tends to keep site improvement costs down. Operational costs are lower than those for multi-story construction, the authority believes, because tenants can do much of the maintenance.

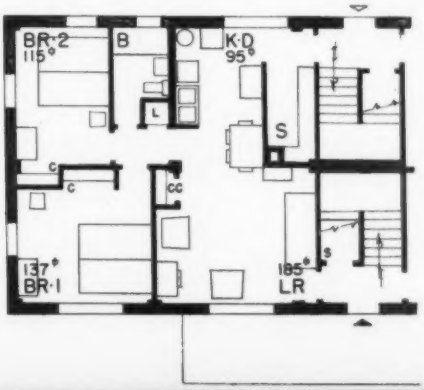
BUILDINGS—SITE

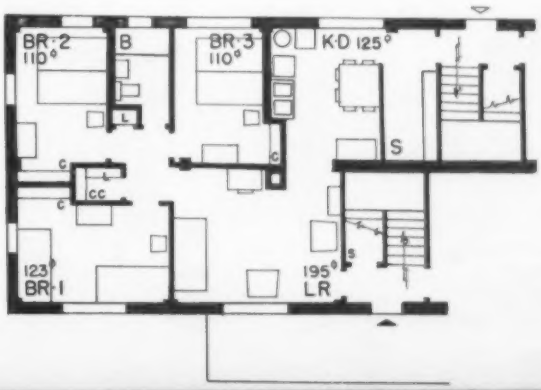
Three-story apartments—720 dwellings
Room ratio—4.79 for 3,450 rooms
Density—30.53 families per net acre
Land coverage—30.64 per cent
Bid opening date—January 26, 1951
Foundations—wood piles and grade beams
Walls—brick with terra cotta tile back-up
Floors—concrete slab on 6-inch sand; reinforced concrete
Roofs—pitched, wood frame over reinforced concrete slab, asbestos-cement shingles
Heat—individual kerosene oil fired space heaters

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$620
Site acquisition (slum)—$898
Site improvement—$1,653
Dwelling construction and equipment—$8,454
Nondwelling construction and equipment—$4
Total development—$12,210*

Per room:
Dwelling construction and equipment—$1,853*
Total project—$8,791,000*
*Includes contingency





WASHINGTON BEECH STREET

Boston —

Three-story apartments

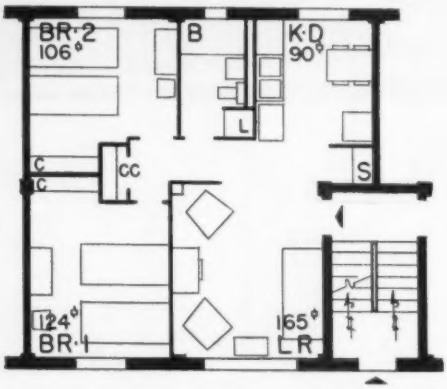
Conformance with the great bulk of construction in the area in which the Boston Housing Authority built this project was the deciding factor in favor of three-story walk-up apartments. Since most of the private residences in the district are three-story, two-and-a-half-story, and two-story buildings, the authority's three-story walk-ups required no zoning changes.

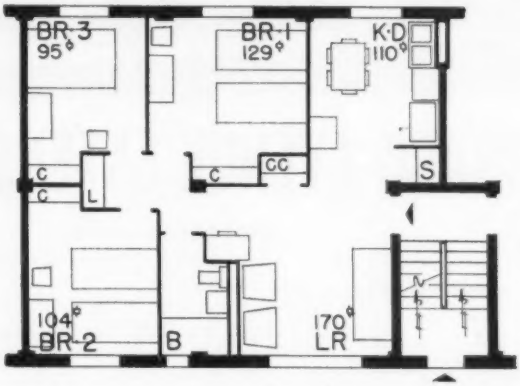
BUILDINGS—SITE

Three-story apartments—274 dwellings
Room ratio—4.87 for 1,335 rooms
Density—35.98 families per net acre
Land coverage—20.8 per cent
Bid opening date—April 27, 1951
Foundations—concrete caissons, grade beams, and 12-inch walls; full basements
Walls—8-inch brick masonry
Floors—reinforced concrete
Roofs—reinforced concrete slab, built-up roofing
Heat—central plant with oil fired low pressure steam

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$670
Site acquisition (vacant)—$236
Site improvement—$1,196
Dwelling construction and equipment—$8,836
Nondwelling construction and equipment—$150
Total development—$11,632*
Per room:
Dwelling construction and equipment—$1,904*
Total project—$3,189,090*
*Includes contingency





JEFFRIES HOMES

Detroit — Fourteen-story apartments

Because the slum site for this project was expensive, it was necessary to build a large number of units on it if average development costs per unit were to be kept within approvable limits. At the same time, the Detroit Housing Commission was faced with the problem of keeping land coverage low. Thus the multi-story buildings provided the solution to the problems of high site costs, many dwellings, and low land coverage.

BUILDINGS—SITE

Fourteen-story apartments—896 dwellings
Six-story apartments—286 dwellings
Three-story apartments—144 dwellings
Two-story row houses—284 dwellings
Total dwellings—1,610
Room ratio—4.65 for 7,486 rooms
Density—38.6 families per net acre
Land coverage—13 per cent
Bid opening dates—May 15, 1950; December 30, 1952
Foundations—concrete piles; concrete mat
Walls—brick with structural tile back-up
Floors—reinforced concrete
Roofs—reinforced concrete, built-up roofing
Heat—central steam plant, coal fired, reduced to low pressure at buildings

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$913
Site acquisition (slum)—$665
Site improvement—$1,120
Dwelling construction and equipment—$9,319
Nondwelling construction and equipment—$374
Total development—$12,855*
Per room:
Dwelling construction and equipment—$2,056*
Total project—$20,696,733*
*Includes contingency

HARTFORD PARK *Providence — Eleven-story apartments*

Row house buildings were the desire of the Housing Authority of the City of Providence for this project but the high-cost site dictated that at least part of the dwellings be put into multi-story buildings if the site were to remain open and land coverage low. The 11-story buildings, however, are actually an adaptation of the row house principle—layers of two-level row houses stacked one on top of another with private enexterior corridors to each unit.

Hartford Park is considered so outstanding in design and in engineering innovations that it was selected by an editorial board of architects for presentation in the October 1951 JOURNAL OF HOUSING (see page 351)

BUILDINGS—SITE

Eleven-story apartments—360 dwellings
Four-story apartments—108 dwellings
Two-story row houses—164 dwellings
Total dwellings—632
Room ratio—4.8 for 3,036 rooms
Density—27.4 families per net acre
Land coverage—21.2 per cent
Bid opening date—May 21, 1951
Foundations—concrete footings and walls; full basements
Walls—reinforced concrete
Floors—reinforced concrete
Roofs—reinforced concrete, built-up roofing
Heat—central plant, oil fired low pressure steam

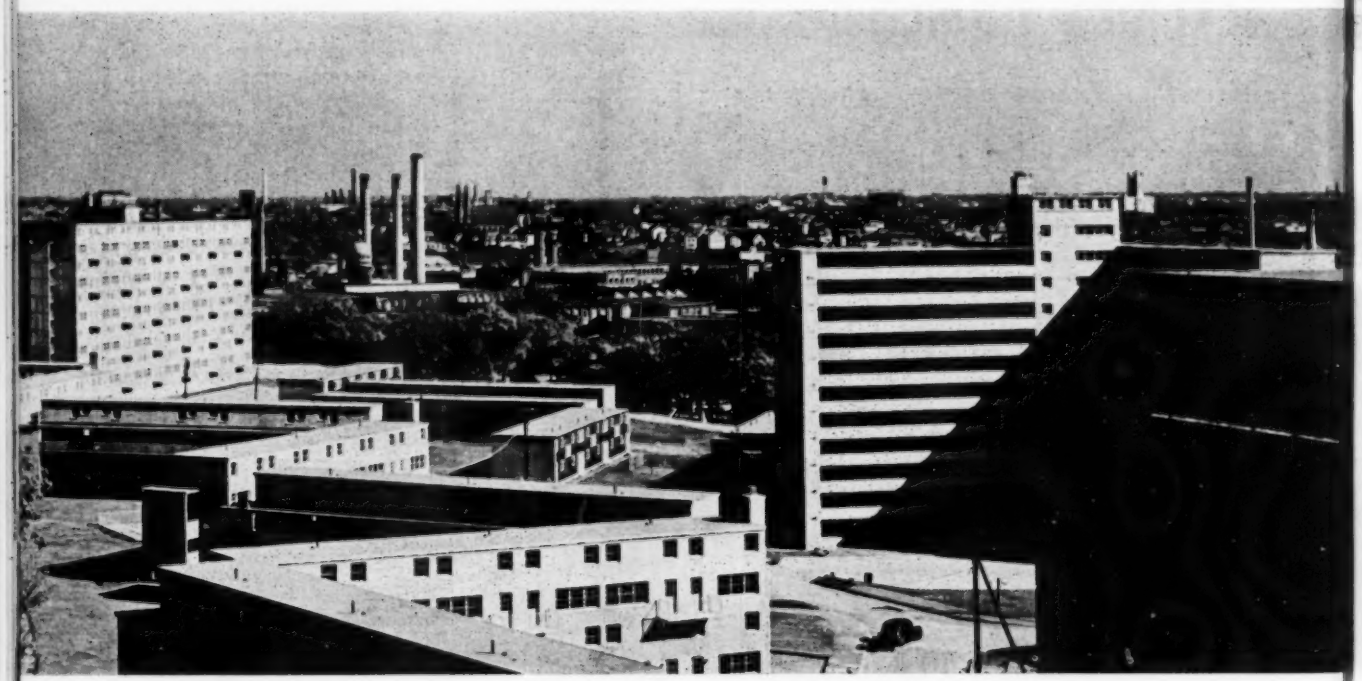
COSTS

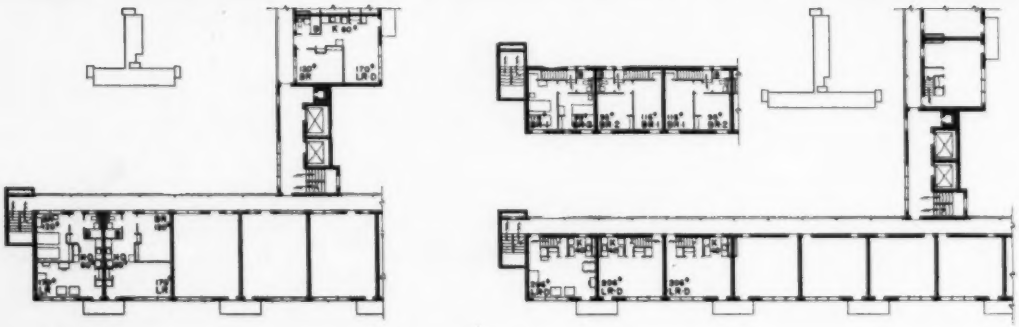
Per dwelling:

Overhead, interest, initial operating deficit, and planning—$538
Site acquisition (vacant)—$569
Site improvement—$1,358
Dwelling construction and equipment—$9,771
Nondwelling construction and equipment—$78
Total development—$12,922*

Per room:

Dwelling construction and equipment—$2,136*
Total project—$8,166,752*
*Includes contingency





EDENWALD HOUSES

New York City — Fourteen-story apartments

The high cost of slum sites is the usual reason that big-city housing authorities resort to multi-story buildings but the New York City Housing Authority cited lower construction costs as the reason for using high-rise buildings for Edenwald Houses, built on a vacant site that was relatively inexpensive.

Although some three-story buildings were used to avoid monotony in the site plan, the economy was achieved by use of 14-story structures. Foundation costs for the three-story and 14-story buildings are approximately the same but the costs per floor for the superstructures decreases as the number of floors increases.

BUILDINGS—SITE

Fourteen-story apartments—1,368 dwellings
Three-story apartments—671 dwellings
Total dwellings—2,039
Room ratio—4.75 for 9,692 rooms
Density—43.94 families per net acre
Land coverage—16 per cent
Bid opening date (superstructures)—June 19, 1951
Foundations—concrete piles, piers, or footings and grade beams
Walls—brick face, slag concrete block back-up
Floors—reinforced concrete
Roofs—reinforced concrete slab
Heat—central plant, oil fired low pressure steam

COSTS

Per dwelling:
Overhead, interest, initial operating deficit, and planning—$690
Site acquisition (vacant)—$535
Site improvement—$1,043
Dwelling construction and equipment—$8,742
Nondwelling construction and equipment—$292
Total development—$11,871*

Per room:
Dwelling construction and equipment—$1,931*
Total project—$24,205,000*
*Includes contingency

AN ARCHITECT—

(Continued from page 316)

Interior Exposed Masonry

Painted cinder block has been increasingly used as a wall finish in the last ten years. It is fireproof and economical in construction cost—at which point its advantages cease. Its surface retains dust and thus it is not to be compared with plaster in qualities of cleanliness or sanitation and in looks. The rough finish and patches where piping occurs also contribute to its poor appearance and there are variations in its texture due to the use of filler brick and block of various densities. It is frequently used in projects with exposed piping.

With its continued use, owners, architects, and engineers will eventually insist on methods of workmanship, installation, and quality of material that will very considerably reduce the economy of this type of interior finish. For instance, plumbing pipes and electrical lines can be "threaded" through the voids in the block and will thus avoid the unsightly and ragged cuts and joints patched up with mortar that characterize present jobs. Also solid cinder brick and block are available for use where fillers are required or where solid bearing is necessary. The industry is continuously trying to improve the quality of its product and avoid its obvious deficiencies. In the meanwhile, only the best quality block should be specified and used. The amount of moisture content of the block has a direct bearing on the extent of unsightly cracking (shrinkage) that may develop. Only recently a report and test on shrinkage indicated that industry standards permit much too high moisture content for interior exposed cinder block.

Roofs

Public housing authorities throughout the United States have accumulated a great deal of data on costs of maintenance of flat versus pitched roofs. They have, however, been reluctant to make the facts generally known. The inference, however, can be plainly drawn that maintenance of flat roofs has been much greater than for pitched roofs. It appears that a good opportunity is being lost in not bringing in industry representatives and showing them the facts and asking for improved materials, specifications, installation practice, and standard details. Flat roofs have been used for years, so it is not particularly easy to understand why housing projects should have so much trouble. It is possible, however, that no other body of users has been in a position to make such a direct comparison between the performance of flat and pitched roofs and can show, on the basis of the facts, that flat roofs are inferior.

There is an apparent difference of opinion regarding the merits of flat roofs with parapets, especially if the roof construction is concrete. It is known that parapets have been pushed out and that serious cracks have developed in walls with parapets—caused by expansion and contraction of the concrete roof slab. Some authorities have experienced this trouble and the repairs have been unsightly and expensive.

However this experience relates to the two- and three-story building (as do all the observations in this article). The experience of the New York City Housing Authority with multi-story buildings does not bear out these contentions. In a total of some 950 buildings, where there are both flat concrete roofs and masonry parapet walls, it has been found that only minor cracks have occurred in the parapet wall or the brick wall below the parapet. Even in the relatively few cases where cracking occurred, the repairs were not expensive and, once completed, were not unsightly and did not recur.

In general, parapet walls are expensive and require maintenance to keep them watertight. If used, they should be most carefully designed. Also in using concrete roofs, with or without parapets, the designer must give proper attention to problems of expansion.

It is possible that much of the difficulty with flat roofs with a composition or built-up cover over wood joists is due to other than the roof finish material. Perhaps roofers are not experienced enough to recognize a poor detail or a type of construction that is not proper for the application of flat roofing materials. Experience has shown that many so-called leaks are not due to a failure of the roofing material but to a failure in the roof construction itself because of poor design. Strange as it seems, and in spite of many examples of flat roofs on old buildings with sufficient ventilation, many architects eliminated ventilation from their flat roof designs—or provided a woefully insufficient amount of it. This failure was aggravated by two so-called design improvements. One "improvement" was the omission of double ceiling and rafter construction and the substitution of single joists that served as both ceiling and roof joists. The second "improvement" was the introduction of insulation in the roof joist space. As it happens, this type of roof construction on a dwelling building requires more, not less, ventilation than any other type of roof construction and designers failed to recognize that fact. As a result, very costly repairs and reconstruction have been necessary. Even today many architects have to be mandated before they provide sufficient ventilation for roof construction—witness the specific requirements of the Federal Housing Administration and the Public Housing Administration. The curious fact is that similar defects are now being experienced on schools, for which there has been a plethora of flat roof designs in recent years.

For those who have been fortunate enough to escape expensive repairs on flat wood roofs, the difficulties experienced are: falling ceilings; serious deterioration and failure of wood joists and sheathing; improperly installed and saturated insulation; pipe chases connecting damp crawl spaces with the flat roof space, permitting the movement of saturated air to condense in the roof space. Most of these conditions can be corrected by providing continuous roof ventilation, by removing and blocking out the eave facia strip, and by stopping all air movement between crawl spaces and roof. But if the project is built with solid bridging or beams set up into the roof joist space or with roof joists laid parallel with the long wall of the building, then the roof must be removed, sheathing and all; all damaged joists and insulation removed and replaced; blocking or secondary roof joists laid over the existing joists; the eaves blocked out to provide ventilation; sheathing reinstalled; and a new roof laid—a very expensive and delicate operation, especially in an occupied building.

It is poor comfort to be told that such conditions are not restricted to public housing projects. Private housing projects have been similarly affected. In general, pitched roof structures have not been in trouble, even though no ventilation has been provided, because the attic space is

(Continued column one, page 333)

AN ARCHITECT—

(Continued from page 332)

large enough to dissipate or reduce the damaging effect of condensation. We know of certain unventilated pitched roof projects, however, where damage is evident and corrective measures should be taken. With a pitched roof, corrective ventilation measures are easy.

All roofs, pitched and flat, should have ventilation of all spaces. Brick vents between every other joist space in flat roofs are not sufficient. If an architect choses to use parapets with flat roofed buildings, he must not be permitted to omit ventilation of the entire roof area. It can be done, though it is expensive, usually requiring a space between ceiling and roof joists (double roof construction) with ample brick vents and in some cases supplemented with roof ventilators.

Conclusion

Management, construction, and design all affect the successful operation of a housing project. Each is dependent upon the other and failure of one may involve all. While the subject of this article relates to deficiencies, do not be confused or magnify the deficiencies mentioned beyond reason or proper relationship, since for every project that is a failure, there are many hundreds of successful projects that are generally trouble free.

ELIZABETH WOOD NO LONGER HEADS CHICAGO AUTHORITY

"For the first time since its formation, the Chicago Housing Authority was without the leadership of Elizabeth Wood Wednesday. Miss Wood, executive secretary of the CHA, was fired by the CHA board late Tuesday for making 'unfounded, unwarranted, and irresponsible' statements to the press."

In these words the *Chicago Daily News* on September 1 recorded the final event in a week long controversy between Miss Wood and her commissioners—beginning with her demotion on August 23 and her dismissal on August 31.

The demotion move was sudden, with no advance warning to Miss Wood or the public. At an August 23 press conference, the commissioners announced that Miss Wood's position as executive secretary was being superseded by a new job in the authority under the title executive director and that Lt. General William B. Kean, retiring commander of the United States Fifth Army, had been appointed to it. At the same time, the commissioners said that Miss Wood's future status in the authority had not been decided upon; that General Kean, on taking over as the authority's director on October 1, would make all staff decisions.

Miss Wood's Statement

Miss Wood, who was told of the decision to create the executive director's position and to appoint General Kean to it only a short time before the press conference was held, made no public statement until a week later. She then was interviewed on a television news program and later issued a press release in which she said that the differences between her and the commissioners of the authority that had resulted in her demotion were based on the nondiscrimination policy of the authority. She said the policy of nondiscrimination and nonsegregation in tenant selection is "rooted in the laws of the state of Illinois, the resolution of the city council, and the stated policies of the authority" but charged that "the authority has paid lip service to policies publicly proclaimed while privately issuing instructions thwarting those policies."

The Commissioners

The authority commissioners had said at the time her demotion was made known that they had created the new executive director's post on the basis of a report by Griffenhagen & Associates, a consulting firm on management and government administration that they had employed to study operation of the authority. The private firm recommended elimination of the executive secretary's job and creation of new jobs: an executive director, a first assistant to the director, and two deputy executive directors.

The day after Miss Wood issued her press release, the commissioners met and voted to dismiss her for

"Liquidate Public Housing!"—NAREB Demands

"Liquidate public housing," battle cry of the National Association of Real Estate Boards for years, is being urged with renewed vigor this year because of the provision in the Housing Act of 1954 that a community can sell its public housing if it assumes responsibility for the bonded indebtedness of the projects involved (see August-September JOURNAL, page 262).

In an editorial signed by NAREB President Ronald J. Chinnock in the August 30 issue of *Headlines* and in a story in *The Wall Street Journal* of the same date, Mr. Chinnock urged NAREB's 43 state real estate associations to push for state legislation that would require a city to hold a referendum on the question of selling its public housing upon petition signed by 10 per cent of the *taxpayers* (editors' italics).

Mr. Chinnock said most of the projects could now be sold to their occupants or to investors for more than their original cost and thus the bonds could be paid off.

"As we go into this battle," Mr. Chinnock said, "remember that the fight against public housing is a fight for property rights and human rights. We can win this fight, state by state. We can get back to our own American way instead of the socialistic way."

making "unfounded, unwarranted, and irresponsible" statements to the press. They also voted her a year's severance pay of $14,000.

Public Reaction

Miss Wood's demotion and subsequent firing brought strong protests from a number of public interest groups and friends of public housing. A citizen's advisory committee to the Chicago Housing Authority resigned in protest of the demotion the day before she was dismissed; the Cook County Industrial Union Council of the CIO said it was "shocked" by the demotion and said the public was entitled to an investigation and full explanation. The city's daily newspapers pointed out in editorials that there has never been a "breath of political scandal" in Miss Wood's operation of the authority and that her stewardship had been "marked by efficiency and devotion." State Senator Marshall Korshak, the Council Against Discrimination of Greater Chicago, and an emergency committee on the Chicago Housing Authority all called for investigations of the firing. The emergency committee also announced that it would hold a mass testimonial meeting for Miss Wood late in October.

Her 17 years as executive secretary of the agency have earned Miss Wood the reputation of being a nationally recognized authority in the field of housing. The *St. Louis Post-Dispatch*, the *Christian Science Monitor*, and the *New York Herald Tribune* have carried major feature stories on her administration of the multi-million dollar housing program. *Progressive Architecture* in 1951 used an article favorably appraising the design of Chicago's multi-story public housing, developed under Miss Wood's direction. Two years ago, 400 persons gathered to pay tribute to Miss Wood at a testimonial "Tribute to Good Government" dinner. Among those present to honor her or who sent messages of appreciation were such persons as Marshall Field, General Robert Wood, the head of the Boy Scouts of America, former Housing and Home Finance Agency Administrator Raymond M. Foley, a justice of the state supreme court, the then director of public welfare for Illinois, and Mayor Kennelly, as well as architects, educators, and nationally known civic leaders and public housers.

Miss Wood had been active in

(Continued column three, page 355)

Housing Statistics

PERMANENT NONFARM HOUSING STARTED

	1954	1953
August	111,000	93,200
First eight months	796,000	771,300

Source: Bureau of Labor Statistics

DOLLAR VALUE OF NEW NONFARM RESIDENTIAL CONSTRUCTION

	1954	1953
August	$1,166,000,000	$1,024,000,000
First eight months	7,529,000,000	7,257,000,000

Source: Bureau of Labor Statistics and Department of Commerce

RENTAL-TYPE HOUSING STARTED

(Total two- and multi-family)

	August 1954	August 1953
Number	11,200	11,700
Per cent to total	10	12.4

Source: Bureau of Labor Statistics

PUBLIC AND PRIVATE HOUSING STARTED

	August 1954	First eight months 1954	August 1953	First eight months 1953
Private	109,800	780,500	92,200	741,700
Public	1,200	15,500	1,000	29,600
Total	111,000	796,000	93,200	771,300

Source: Bureau of Labor Statistics

URBAN AND RURAL NONFARM HOUSING STARTED

	August 1954	August 1953
Metropolitan	79,500	67,300
Nonmetropolitan	31,500	25,900
Total	111,000	93,200

Source: Bureau of Labor Statistics

DOLLAR AMOUNT OF NONFARM MORTGAGES RECORDED

(In amounts of $20,000 or less)

	1954	1953
July	$ 2,026,945,000	$ 1,797,760,000
First seven months	12,195,481,000	11,392,696,000

During July, FHA mortgage insurance on one- to four-family homes was written in the amount of $154,598,000. Also during July, a total of $293,651,000 in GI home loans was guaranteed by the Veterans Administration.

Source: Home Loan Bank Board, Federal Housing Administration, Veterans Administration

NUMBER OF NONFARM MORTGAGES RECORDED

(In amounts of $20,000 or less)

	1954	1953
July	305,991	286,169
First seven months	1,895,146	1,838,058

Source: Home Loan Bank Board

LARGE-SCALE PROJECT HOUSING FHA MORTGAGE INSURANCE

(Under Titles II, VI, VIII and IX)

	July 1954	First seven months 1954	July 1953	First seven months 1953
Dwelling units	1,699	14,148	4,649	19,079
Dollar amount	$13,558,000	$120,353,000	$40,472,000	$159,948,000

Source: Federal Housing Administration

AVERAGE HOURLY EARNINGS OF BUILDING CONSTRUCTION LABOR

(Includes earnings of off-site labor and labor on public construction)

	1954	1953
July	$2.57	$2.47

Source: Bureau of Labor Statistics

INDEX OF WHOLESALE PRICES OF BUILDING MATERIALS

(1947-1949=100)

	1954	1953
August	120.8	120.8

Source: Bureau of Labor Statistics

Box Score

PROGRAM UNDER HOUSING ACT OF 1949

PROGRESS UNDER TITLE I (URBAN REDEVELOPMENT)

(As of July 31, 1954)

Capital Grant Reservations Outstanding

States	Localities	Amount
34[1]	203	$250,338,000

[1]Includes 30 states, the District of Columbia, Alaska, Hawaii, and Puerto Rico.

Progress of Local Programs

	Local Programs Approved	Development Activities Approved
Localities	179	35
Projects	...	73

Title I Assistance Approved

	Preliminary Planning Advances	Final Planning Advances	Temporary Loans	Capital Grants
Applications	163	118	51	65
Amounts	$4,327,000	$4,281,000	$118,178,000	$118,081,000

Source: DSCUR Report of Title I Operations

PROGRESS UNDER TITLE III (PUBLIC HOUSING)

(As of July 31, 1954)

Program Reservations Approved

Applications	Units	States
1,111	349,281[1]	46[2]

[1]Excluding cancellations.
[2]Includes 41 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, and the Virgin Islands.

Preliminary Loans Requested and Approved

	Requested	Approved by President
Localities	1,104	1,080
Units	347,935	345,037

Cooperation Agreements Approved by PHA

Number	Units
1,081	345,446

Approved Loan and Annual Contributions Contracts

Units	Projects	Localities
226,840	1,394	796

Progress of Projects

	Site Approved	Construction Started	Completed
Localities	981	783	729
Units	255,573	191,049	149,195
Projects	1,752	1,328	1,197

Source: PHA Monthly Progress Report

PROGRESS UNDER TITLE V (FARM HOUSING)

Congress failed to appropriate funds to continue Title V of the 1949 housing act after June 30, 1954 and thus unless funds are appropriated at a future date, the score for the program will remain as it was as of June 30: 19,639 approved loans totaling $97,483,938. As of that date, 14,357 borrowers had completed their work and another 2,825 had work under way, which is expected to be completed.

FHA CRACKS DOWN ON 608 WINDFALLS; TITLE I VIOLATORS

The five-month investigation of irregularities in the Federal Housing Administration's programs (see May JOURNAL, page 153; July, page 224) by early September was beginning to bear fruit. Administrator Albert M. Cole of the Housing and Home Finance Agency announced a plan to recover windfall profits from 608 apartment projects and the Department of Justice said more and more persons were being indicted for criminal offenses under the Title I home improvement program.

Meanwhile, the Senate Committee on Banking and Currency, which has taken its investigation of FHA programs to New York, Los Angeles, Chicago, and New Orleans in an attempt to learn details of the irregularities in both programs, has uncovered what appears to be another type of irregularity—that of profits among so-called "nonprofit" corporations sponsoring cooperative housing developments under the section 213 program.

608 Case

The attempt by the federal government to recover windfall profits was announced in Washington by Mr. Cole, who said the first such action had been started against Sidney Sarner of Fort Lee, New Jersey, who allegedly reaped a $2,426,821 windfall profit on a 608 project. The Sarner case, Mr. Cole said, would serve as a pattern for subsequent cases.

The federal government is basing its case against the 608 "profiteers" on its contention that the builders violated their corporation charters, which provide that only "earned income" may be distributed to stockholders and that the windfall profits are not "earned income."

Since a 608 contract between a builder and FHA makes FHA a preferred stockholder—and the only preferred stockholder of each corporation—FHA first requested that Mr. Sarner call a meeting of the preferred stockholders for the purpose of removing the present directors of the corporation that built the project.

Mr. Sarner refused to call the meeting, however, and FHA Commissioner Norman T. Mason issued the call for September 22 through an advertisement in a Hackensack,

(Continued column two, page 340)

TOUGH GRASSES FOR HARD WEAR

FRED V. GRAU
West Point Products Corporation, West Point, Pennsylvania

In the development of satisfactory lawns, particularly in low-rent housing projects, it is of utmost importance to make it a first order of business to select the toughest grasses that are known to be adapted to the area. In addition to being tough, these grasses should give a good appearance and should have the ability to spread, so that injuries and worn areas can heal rapidly. When the selections have been made, then the problems of successful establishment and intelligent management follow in due course. This article briefly describes the toughest grasses known, largely disregarding those that require undue care, and suggests methods for their establishment and care. Reference is here made to PHA Bulletin No. LR-26, issued by the Public Housing Administration in April 1951, as a good source of information on this subject.

There exist essentially two regions in the United States so far as lawn grasses are concerned. In one, the cool-season grasses are best adapted (bluegrasses, fescues, bents). In the other, we find the warm-season grasses predominating (bermudagrass, centipedegrass, zoysia, and others). The cool-season grasses do best in the northern part of the country but they may be grown in the southern arid regions when they are properly irrigated. The warm-season grasses generally do best in the southern part of the United States where it is the hottest but some of them will grow well in the region of the cool-season grasses under intelligent management. Any attempt to influence anyone in the selection of a certain grass is made with only one consideration in mind —to provide the toughest possible turf that requires the minimum of maintenance but that provides the maximum of satisfaction.

Tough Cool-Season Grasses

Tall Fescue (Kentucky 31 fescue and Alta fescue). Tall fescue draws the No. 1 position in this line-up because (a) it will grow well in nearly all soils of widely varying texture, acidity, alkalinity, and fertility. Of all the cool-season grasses it will succeed better farther into the warm-season grass region. When sown during "off season," the seed has a better chance to develop than most other cool-season grasses. In recent years the price range of tall fescue makes it competitive with ryegrass. Kentucky 31 fescue gets the nod over Alta because of its superior performance in widely distributed tests. Kentucky 31 has all the good features of Alta plus slightly finer blade and greater persistence because of greater disease and heat resistance.

Perennial Ryegrass. Few grasses are tougher than this one, particularly when it comes to cutting the grass. Mowers must be razor-keen to do a good job. Dull mowers simply bruise the blades and cause the grass to turn grey, then brown. This grass is easy to establish and is surprisingly persistent in spite of recurring attacks of diseases (leaf-spots and rusts) and indifferent management. Seed cost is greater than common or domestic ryegrass but worth the difference in satisfaction. There are no known improved strains that have been tested in this country.

Kentucky Bluegrass. This grass is a perennial that does best under rather exacting requirements of soil conditions and fertility but that persists surprisingly well under unfavorable circumstances when once estab-

lished. Authorities generally agree that late summer and early fall seedings are best except in the extreme northern United States, where spring seedings are preferred because of the short growing season. Common Kentucky bluegrass performs best under high mowing (1½ inches or higher). Even then it is highly susceptible to leafspot, which often nearly ruins the grass in early spring, allowing crabgrass, goosegrass, knotweed, and other summer weeds to invade it. When bluegrass seed prices are high, one is justified in reducing the percentage in a mixture to as low as 10 or 15 per cent. The success of bluegrass in a mixture depends more upon management than on the percentage in the seed mixture.

Merion is an improved bluegrass that is better adapted to close mowing (¾-inch) than common bluegrass. Merion usually has less summer weeds because of its high resistance to leafspot. It performs best when fertilized generously, mowed closely, and watered deeply at long intervals. At present prices, it may not fit well into low-cost housing developments, where management is uncertain.

Red Fescue. Red fescue may be purchased either as Chewings fescue (bunch-type) or as creeping red fescue (sod-forming). The so-called creeping types spread to form solid sod only under favorable circumstances, usually not under heavy use. The creeping types are tougher and are better able to heal injuries because of the tendency to spread. The several named strains of red fescues now on the market tend to perform in similar fashion over a wide territory. Improved types may be expected in a few years. Red fescues rarely are seeded alone but do best in mixtures with tall fescue and bluegrass. Best performance is on sandy, well drained soils and where there is light to medium shade. Diseases often take heavy toll of red fescues during moist periods, providing perfect conditions for summer weeds.

Bentgrass. The only kinds of bentgrass to be considered at all are the three main types of colonial bents: Highland, New Zealand Browntop, and Astoria, named in order of their toughness. Bentgrasses rarely should be considered for difficult areas over most of the country because of their narrow adaptation to climate and management. Bentgrasses generally require more moisture and more frequent mowing than the other cool-season grasses. When included in a mixture, the bent should rarely constitute more than 5 per cent of the total weight of seed. Even as little as 1 per cent can result in 100 per cent bent in the turf if conditions are favorable. The best advice is to omit bent on lawns unless unusual local circumstances dictate its use.

Cool-Season Management

Specific details of grass management may be found in many state agricultural college circulars and bulletins but a condensation of principles seems to be in order here.

Soil Cultivation. Regular aeration or soil cultivation when soil moisture is favorable to penetration of spoons or tines is essential to the easy movement of fertilizer, moisture, lime, and air into the root zone and to the effective placement of seed. Soils become compact through use and materials applied on the surface largely may be lost through runoff, which may reach 80 to 90 per cent on slopes. One machine, known as an *Aerifier*, actually cultivates and loosens the soil below the surface. Some machines such as a *Night Crawler* remove cores of soil by the use of tubular tines.

Fertilization. Grasses require ample nutrients in order to encourage vigorous growth, which will provide a tough, wear-resisting sod. Starvation is more often the basis of poor results than any other single factor. It is important also to apply fertilizers when the grasses can make best use of them. For the cool-season grasses, this time is conceded to be spring and fall when root growth is most active. Summer feeding, when grasses may be largely dormant, generally results only in encouragement of crabgrass and other summer weeds. Complete balanced fertilizers generally give best results unless soil tests indicate that certain elements are present and available in abundance. A 10-6-4 fertilizer is a good example of a widely used complete fertilizer mixture. The figures always represent, respectively, nitrogen, phosphoric acid, and potash. Other widely used analyses include 6-10-4, 5-10-5, 8-6-4. Good practice includes the occasional use of organic

U-3 bermuda grass was used for the author's lawn on raw subsoil where previously nothing but crab grass grew.

After using aerifier, a mixture of tough grasses was sown. Ground was completely covered the second year.

fertilizers, which furnish primarily nitrogen.

Fertilization is most effective when done in conjunction with soil cultivation or aeration. In general, fertilizers do not need to be watered in. When applied on dry grass and brushed in with leaf rake, broom, or mat drag, burning is minimized.

Mowing. Mowing is a shock to grass. The shock is more severe with long intervals between mowings. In general, grass is better the more often it is mowed. In this way, the shock of removing part of the food factory (the leaves) is lessened. It is important to have mowers sharp. A clean "surgical" cut is less of a shock than a tearing or bruising with a dull, poorly adjusted mower. The 1½-inch height cut is recommended more often than any other for the common cool-season grasses. For tough conditions this height may be increased to 2 inches if the mower can be so adjusted.

Aerifier scoops out soil, leaves deep, loose-walled cavities to trap water, lime, fertilizer seed. Cores crumble and provide "free" topsoil.

Warm-Season Grasses

Bermudagrass. No one grass enjoys wider use under tough conditions than this grass, originally introduced from India. A real pest in cultivated row crops, it is No. 1 on the list of toughies in the warm-season group of grasses for lawns. A big advantage is an ample seed supply at conservative prices. The principal requirements for success are (a) planting at the beginning of the warm season and (b) generous fertilization, especially with nitrogen. Bermudagrass responds to soil cultivation and to the use of lime where soils tend to be acid.

Improved types of bermudagrass have been developed, all of which must be planted by sprigs, since no seed is available. Advantages include disease resistance and uniform texture. The tough types for lawn include:

U-3, originally from Savannah, is a fine textured grass adapted in the arid regions and in the southern part of the cool-season regions, where ordinary bermuda winter kills. Supplies of sprigs are still limited but improving.

Tiflawn, known experimentally as Tifton 57, is a vigorous disease resistant type adapted over the entire bermuda region but not as winter hardy as U-3. Close frequent mowing helps to minimize formation of surface mat or thatch. Local selections in various parts of the country show promise and should be investigated through the state experiment stations.

Bahiagrass. This grass is not so widely adapted as bermudagrass nor is it winter hardy as far north. For sheer toughness it has much to recommend its use where it is adapted. Seed is available at reasonable cost and establishment is not difficult. Of the types available, the Pensacola strain is most generally recommended for tough situations where hard wear is a problem. Bahiagrass requires less intensive fertilization than bermudagrass.

Centipedegrass. Sometimes called "the city lawngrass of the south," this grass south of Tennessee is among the best where minimum maintenance prevails. It can be established by seeding or sprigging and it requires less attention than almost any other lawngrass. The evil to avoid is overstimulation with fertilizer. Too much nitrogen produces a heavy matted growth that literally "chokes itself."

Zoysiagrasses. The zoysiagrasses, strictly warm-season grasses, have the remarkable faculty of encompassing nearly the entire United States, including most of the region occupied by the cool-season grasses. Manilagrass (*zoysia matrella*) is semi-tropical in nature and adapted only little further north than centipedegrass. It is fine textured and generally too exacting in maintenance requirements to be considered for tough use. Japanese lawngrass (*zoysia japonica*) is a tougher member of the family, coarser in texture, and much more widely adapted. When seed and sod become more plentiful, this grass will become popular over a wide range, particularly in the "transition zone" where cool-season and warm-season grasses meet and overlap. An improved strain is Meyer (Z-52) zoysia, still in very short supply. The zoysiagrasses generally are still in the future for housing projects but bear investigation when more plentiful supplies bring prices within reason.

Other warm-season grasses deserve mention here for special situations. Carpetgrass south of Augusta and Birmingham does well on wet sandy soils under minimum maintenance. Seed is available. St. Augustinegrass occupies the same general territory and does well in shade or sun on sandy loam soils and under intensive maintenance, which includes much water. It is not generally considered for tough going.

Warm-Season Management

Management of the warm-season grasses differs radically from the cool-season grasses in one important respect. Fertilizer must be applied during the warm season when growth is active. The emphasis is placed on nitrogen, with an application of bal-

anced fertilizer (4-8-6, 5-10-5, or similar) at 10 to 15 pounds to 1000 square feet every third or fourth year.

Height of cut for warm-season grasses levels off at 1 inch. This seems to be satisfactory for all the grasses adapted to the region. Clippings generally may remain unless they are so heavy as to be unsightly and tend to smother the grass. Watering should be done only when the grasses wilt and then deep soaking is recommended. Soil cultivation is as important as it is for the cool-season grasses.

Hints on Seeding

Seeds must be sown in proper season for best results. Early spring and late summer are best for the cool-season grasses; late spring and early summer for the warm-season grasses. For proper development of the seedlings, it is essential that fertilizers be present in the seedbed to nourish the plants. Preparation of the seedbed is very important. It must be firm so that moisture will rise to keep the seed moist. The seed must be covered not too deeply so as to prevent emergence. Most authorities suggest a depth of ⅛- to ¼-inch. Recently it has been demonstrated that seeds sown after the operation of a cultivating tool, such as the *Aerifier*, mentioned above, become established with great assurance in the soil cavities. This method, in effect, has extended the planting season of the cool-season grasses. A light covering of straw or old hay will mulch the new seeding, reduce erosion, and will help to keep the soil cool and moist. The mulch may be left on the ground, since it will disappear as the grass grows. It is important to mow the grass as soon as there is anything (even weeds) to mow. Many seedings are ruined by allowing the new growth to get so large as to smother the young seedlings.

Hints on Sprigging

Sprigs of grass are simply runners or pieces of stem or root which, when planted, take root at the joints and grow and spread to establish the new sod. The essential feature of sprigging is to bury one end or part of the sprig as deeply as possible, leaving an inch or two sticking out of the soil. This operation may be performed by opening furrows in the soil or by making a deep slit or trench with a spade, shovel, or similar instrument. After the sprig is inserted properly, the soil should be compacted around the grass and kept moist until well rooted. In some areas of the south there are sprigging machines in use that reduce the cost of planting sprigs to about that of seeding. In general, sprigging is very dependable and, of course, is the only way to plant those improved grasses for which no seed is available.

Plugging

Plugging is a new term to most laymen but an old device for golf course superintendents. Essentially it consists of removing a damaged piece of sod with a special tool and inserting a new plug of sod taken from a nursery with the same tool. In this way the sod plug fits the hole exactly and the repair is virtually foolproof. This method is becoming a favorite way to plant a lawn to improved grasses for which no seed is available. For this plan to succeed, the first step is to purchase a piece of the improved sod from a commercial nursery and to establish it in the lawn. The next step is to acquire a plugging tool and to set plugs at intervals over the area of the lawn that needs improving.

It has been shown that the new sod plug will become established better if a little fertilizer is placed in the hole before setting the plug. This practice holds also for the hole left in the piece of nursery sod before it is filled with good soil. It is important to press the plug down firmly with the heel or with a wooden tamp or hammer. Thorough watering until new growth starts will help to insure success.

The magazine type of plugger has proven quite satisfactory. It holds about 20 plugs and can be emptied simply by turning the tool upside down. Most golf course supply dealers can furnish plugging tools.

In General

To write about, or to read about, producing a good lawn is fairly simple; to actually accomplish the feat is often very different. A good lawn is achieved only through diligent effort. Recommendations from different sources may seem confusing at times but, basically, most authorities agree very well on principles. The logical sources of specific information are the state agricultural experiment stations, some of which *(Continued column one, page 340)*

INTEREST RATES GO UP IN SEPTEMBER 15 HOUSING BOND SALE

Borrowing costs for long-term housing authority bonds increased in mid-September when some 135.9 million dollars in authority obligations were sold at an average interest rate of 2.3327 per cent. The rate reversed a decline in borrowing costs that began in December of 1953 and that has characterized the last three bond offerings (see July JOURNAL, page 230).

In the September 15 sale, 14 housing authorities offered bonds, with the Boston, New York City, and Newark authorities borrowing most of the money. Nine of the issues—equal to over 70 per cent of the entire sale—were bought up by a bankers group headed by the Chase National Bank, thus reversing another trend of the two previous sales in which the so-called "dealers" syndicate had gotten the lion's share of the offerings. In the September sale, a dealers group headed by Lehman Brothers, Blyth & Company, Inc., and Phelps, Fenn & Company lost out under heavy bidding by the Chase National Bank and its associates, managing to win only 19.5 million dollars in two Pennsylvania authority obligations—Philadelphia and Reading. The Bank of America and associates won the only issues on which they bid: three California authority offerings totaling 19.3 million dollars.

One explanation for the heavy bidding by the bankers, according to the *Wall Street Journal*, is that relatively larger amounts of investment money are currently available to banks due to an unseasonal decrease in business loans.

Most of the issues sold had final maturities of 40 years, exceptions being issues posted by Jersey City, with last maturities due in 1990, and Beaumont, Texas, with last maturities due in 1993.

Redevelopment Financing

Earlier, a "first" was scored in the five-year history of redevelopment project financing. The Redevelopment Authority of Chester, Pennsylvania notified the Housing and Home Finance Agency in late July that it had been able to obtain from private sources most of the money it needed to finance a slum clearance project and therefore would not need the $755,408 temporary federal loan that had been allocated to the city for that purpose. The Chester authority thus

becomes the first local public agency operating under Title I of the 1949 housing act to proceed immediately into private financing after the execution of a loan and grant contract with HHFA instead of first borrowing federal funds to carry out initial stages of its program.

The Chester authority's private financing source was the Delaware County National Bank, located in Chester. It bought $666,000 in six-month notes from the authority at an interest rate of .55 per cent—lowest cost at which any redevelopment notes have ever been sold. The local bank underbid financial interests in Philadelphia and New York to win the offering.

TOUGH GRASSES—

(Continued from page 339)

provide lawn bulletins based upon extensive tests.

When a lawn becomes poor and weedy, it is a common mistake to "dig it up and start all over." This procedure is a costly and unnecessary one. Weeds can be removed mechanically or chemically at reasonable cost. New tools are being built to remove weeds mechanically from turf grass areas. Cultivation of the soil with modern aerating equipment permits lime, fertilizer, water, and air to reach the roots. The soil cavities are ideal for the reseeding or replanting job (sprigs) that is necessary. A well planned renovation job keeps the lawn in use while it is being remade.

The tough grasses do not need to be babied and pampered. When water becomes necessary to keep grass alive, a long, thorough, deep soaking is best. Water should be applied only as fast as the soil will absorb it. To apply it any faster simply means runoff and waste. By cultivating and aerating the soil during the time when it is naturally moist, it will be more receptive to water when it becomes so dry and hard that it would be impossible to aerate effectively.

Weed control is most effective when there is produced a dense sod of adapted grasses. The presence of weeds simply means that something is lacking. It may be that the grasses present are not w h o l l y adapted, which is quite frequently the case. It may also mean that some essential part of intelligent management has been overlooked. The most important elements on the job are:

1—Select the right grasses

2—Cultivate the soil regularly

3—Fertilize regularly and generously according to the needs of the grass

4—Mow frequently at the correct height

5—Water deeply as needed.

FHA INVESTIGATIONS—

(Continued from page 335)

New Jersey newspaper. At the September meeting, FHA employees were to represent FHA as the preferred stockholder and were expected to oust the former directors of the building corporation and elect new directors—from FHA. (Before the meeting, however, attorneys for Mr. Sarner said action was being taken to enjoin FHA from holding the meeting.)

The federal government is then expected to sue the corporation that built the project for what it considers the windfall profit. The corporation may in turn have to sue the individuals to whom it distributed the windfall profit in order to recover it.

If eventually the windfall profit is recovered by the federal government, FHA plans to use it to reduce the principle of the mortgage, which in turn should reduce rents on the apartments. As soon as the violations are corrected, FHA plans to relinquish control of the corporation.

Title I Indictments

Of the 137 persons indicated for violations under the Title I home improvement program in the past 20 months, 67 have been convicted, the Justice Department said. The cases prosecuted include "improvements" on nonexistent homes; loans for "improvements" never made; cash rebates to home owners; and loans used for such purposes as buying cars, alimony payments, and repaying gambling debts. In one case under investigation, a credit agency was created "for the sole purpose of manufacturing fictitious credit reports."

Section 213 Cases

When the Senate committee took its investigation to Los Angeles, it uncovered the case of two builders who admitted they would make million dollar profits on "nonprofit" corporations that sponsored two projects —the mammoth Lakewood Park and Carson Park, both near Los Angeles. At the same time it was revealed that Robert R. Young, railroad financier, and Texas millionaire Clint W. Murchison were members of the Minneapolis syndicate that helped finance the projects and would make huge profits on them. (Mr. Murchison's son earlier was named as a 608 "profiteer"—July JOURNAL, page 224.) Section 213 financing, which requires that the housing be built on a nonprofit basis, was used, in part, at least, in both the Los Angeles projects.

In Short...

BOSTON PROJECT ELEVATORS NOW GEARED TO STOP AT ALL FLOORS

"To stop the kids from making those mad runs from the basement to the roof," elevators in the seven-story buildings of the Boston authority's new Columbia Point low-rent project have been made self-starting, with automatic stops at every floor, both going up and coming down. Theory is that the measure will save the elevators from what past experience has shown to be one of their most devastating dangers: small boys.

NEW YORK AUTHORITY ARCHITECTS ASKED TO EMPHASIZE EYE APPEAL

To make projects pretty as well as efficient and economical, the New York City Housing Authority has come up with a series of ideas that it is urging its architects to use in developing new designs. Some of the ideas being considered are: (1) use of colored glazed brick and painted metal panels to relieve the uniformity of the "common red" brick used for most of the authority's projects; (2) grouping of windows in pleasing patterns rather than letting them come as they may on the facade; (3) allowing architects greater latitude in selection of window types, sizes, and proportions; (4) variations in the landscaping and fencing schemes around the projects; and (5) use of new and more attractive materials in paving exterior sitting areas.

HOUSES ESPECIALLY DESIGNED FOR CARDIAC VICTIMS PLANNED

The American Institute of Architects and the American Heart Association are currently engaged in a collaborative effort with doctors and with three California schools of architecture to promote the design of houses especially for people suffering from cardiac ailments. The joint undertaking is intended to train *(Continued column two, page 357)*

EVERY MEMBER DRIVE COMES TO LAST DAYS

President Winston's second every-member-get-a-member appeal letter raised response from 78 NAHRO members in one month. Total of members who acted in drive reached 256 as of September 30.

With the last lap of NAHRO's 1954 membership drive approaching in mid-October, campaign activities during August and September went forward at a speeded up rate.

A second appeal from NAHRO President Oliver C. Winston in August to every active member to bring in a new recruit produced a definite upswing in the record. Although the original goal of a net increase of 1000 new members was not in sight as of the close of September, (an encouraging 839 new members had been added to the mailing list since the drive began in February. However, during that same period, 450 members dropped out, leaving a net gain of only 389 new members.

The response to Mr. Winston's second every-member-get-a-member appeal was immediate. Over 145 members were recruited from August 15 to September 30, most of them as a direct result of the letter. Mr. Winston was reassured by the response and he commented to the active membership: "I am confident that by the close of our annual meeting in October we will be able to show that NAHRO is stronger than ever, both in its membership and in its effectiveness as the professional organization which represents your interests. Such progress as we have been able to make this year is due chiefly to the interest and the active participation of each of you as members and I take this occasion to thank you personally."

Supplementing the bouquets passed out in last month's JOURNAL (page 273) to those who had done outstanding jobs in the campaign up to July, here is another round of applause for other NAHRO members who have given the campaign enthusiastic support.

In the Pacific Southwest Haig Shamshoian, California membership co-chairman, and Eleanor R. Walters, regional membership chairman, did multiple enrollment jobs. Mrs. Walters added another authority to the "100 per cent" list by bringing in nine staff members of the Monterey County, California housing authority.

In the North Central region, credit for multiple-membership recruitment goes to Alice Bilski, Michigan membership chairman; Charles L. Farris, St. Louis; and Henry Stefanik, Cincinnati.

In other regions, George Biro, New York City, and a number of Nashville NAHRO members, led by Gerald Gimre and George Guy, have added a large number of new members to the roster in the closing months of the drive.

Following NAHRO President Winston's suggestion that public officials not directly connected with community rebuilding might be signed up as NAHRO members, James R. Clemmons, Lebanon, Tennessee, brought in his mayor—and Robert D. Lee, Richmond, California put Mayor Jack O. Fries of Martinez, California on the rolls.

Many local housing and redevelopment agencies have brought all of their commissioners into the Association. Among NAHRO members who have recruited all of the commissioners of the authorities with which they are associated are George R. Wallace, Oxnard, California; Hugo Allardt, Fresno, California; Donald M. Graham, Providence; George Beavers, Los Angeles; John I. Robinson, Springfield; and Mrs. Henry Gunderson, Milwaukee—the latter three being commissioners themselves. For a more complete report on commissioner membership see page 351.

NEW INDIVIDUAL MEMBERS

C. A. Anderson, Houston
Henry J. Andreas, Philadelphia
Alan H. Armstrong, Ottawa
Robert E. Avery, Pasco

William D. Baird, Lebanon
Mrs. Wanda Basham, Cincinnati
Mrs. Jo Ann Beard, Lebanon
Francis J. Beckett, Philadelphia
Abe M. Berson, New York
Thaddeus L. Bialek, Baltimore
James K. Blackburn, Pulaski
Ralph D. Byrd, Portland
Miss Rosalie E. Bronkema, Detroit
Kibble J. Brown, Salinas
Mrs. Lucille Bucklew, Baltimore
Arthur D. Byrne, Knoxville

William Callen, New York
John F. Camp, Jr., Vancouver
William Carleton, Newport News
John M. Casserly, Columbus, Ohio
Miss Olive Caulk, Baltimore
Mrs. Blanca G. Cedeno, New York
Wah Jan Chong, St. Louis
Harvey E. Clark, Nashville
Robert E. Clark, Los Angeles
James R. Clemmons, Jr., Lebanon
Miss Fern M. Colborn, New York
Andrew G. Copeland, Norfolk
Jack A. Corbett, McComb City
Roy O. Crips, Lebanon
Leo E. Crowley, Buffalo

Louis J. Dalferes, Jr., New Orleans
Lorenza Dennis, Nashville
Francis M. Disney, Baltimore
Pierce W. Dodson, Lebanon
James T. Drought, St. Louis
Richard W. Drugger, Chattanooga
Robert S. Durr, Oxnard

Mrs. Harris Fagg, McGregor
Louis E. Fournier, Fall River
Jack O. Fries, Martinez

Earl L. Gary, Nashville
Edward Geeson, Detroit
Robert W. Gilbert, Los Angeles
Richard V. Gonzales, Corpus Christi
Lowell Gordon, New York
William P. Gore, Columbus, Georgia
Samuel Granville, New York
Robert H. Gries, Cleveland
Miss Vereene Griggs, Blakely
Mrs. Jane Grimes, Kelso
Fred Grosser, Cleveland

James Hall, Yonkers
Albert Harkness, Providence
Ewell J. Harned, Cleveland
Charles B. Harrelson, Phenix City
Joseph B. Harris, Everett
Elsworth J. Hawkins, Sr., Seattle
Richmond Hawkins, Detroit
E. G. Henslee, Texarkana
William D. Herring, Wilmington, North Carolina
Mrs. Martha B. Hickman, Jacksonville
W. P. Higgins, Fort Worth
Mrs. Ruth D. Hines, Fayetteville
Thomas E. Hinson, Lebanon
Harry P. Hogan, Springfield
A. T. Hostetter, Pasco
Mrs. Helen T. Hughes, Owensboro

Mrs. Aileen W. Inman, San Antonio

Joseph G. Jacobs, Cincinnati
W. D. Janes, Dallas
Ben Jokerst, Jr., Rock Falls
Warren Jones, Salinas

John M. Kahlert, Chicago
Maurice V. Kelly, Springfield
W. C. Kirchner, Pasco
James Kozma, Rome
Mrs. Elizabeth Krauth, Atlanta

Mrs. Karl H. Lang, Louisville
George W. Larkins, Baltimore
John M. Lassing, Jr., Nashville
John J. Lawrence, Jr., New Orleans
Maurice Du Pont Lee, Wilmington, Delaware
Aaron Leites, New York
Carl Leucht, Detroit
Miss Rose Levinson, New York
Fred H. Liner, Norfolk

John D. Macmillan, Springfield
Chester R. Martin, Providence
Mauro D. Martinez, Corpus Christi
Joseph Matluck, New York
John J. Matthews, Pittsburgh
Edmund Mauro, Providence
Miss Roselie Mayer, New York
Robert E. McCabe, Arlington
Timothy J. McCarthy, Providence
Deerwood McCord, Nashville
John B. McFerran, Jr., Louisville
Donald H. McKee, Los Angeles

(Continued column two, page 355)

NAHRO MEMBERS WHO HAVE RECRUITED NEW MEMBERS

Sol Ackerman
John E. Acuff, Jr.
Louise Adcock
Hugo Allardt*
Carl W. Anderson
Luella J. Anderson
Fred Anthon*
William Austin
M. Carle Bacon
Martha Baker
Herbert Banks
Knox Banner*
Elmer F. Bargatze
Angeline Baxter*
George A. Beavers, Jr.*
Joe C. Behrens
Joseph T. Benedict
Mabel G. Bennett
Betty Bergerson*
Alice Bilski*
George Biro*
Murray Bisgaier
H. W. Blanford
E. G. Boehringer
Ernest J. Bohn*
Margaret R. Bolles
Thomas Booker*
John H. Brandon
Lamar Branscomb
Louise H. Buchanan
T. S. Bunsa
Emmett Burke
H. F. Burris
Malcolm A. Burrows*
Gerald J. Carey
Paul Casaccio
Billie A. Chatham
Martin Chorzempa
James R. Clemmons*
C. Henry Cohen
Bernice Collins
Florence T. Conlin*
Alexander Crosby
Rubye M. Curlin
Reba Davis
Henry D. De Locke
Leo H. Dennis*
Harold J. Dillehay
Nicholas H. Dosker*
George J. Dunn*
Ray O. Edwards*
Edgar Ewing
Lottie Fairbrook
Charles Farris*
Frederic A. Fay*
Dudley T. Finch
Ramsey Findlater*
Edith Flora
Dorothy O. Forbes
Arthur Frank
Paul Freedman*
Katherine Gallup*
Edna Garrett*
Harry D. Gates*
The Very Reverend Monsignor Leo A. Geary
W. W. George
Gerald Gimre*
S. P. Goodman*
Marjorie Gould
Donald M. Graham*
Mrs. V. Rabun Gross*
G. T. Gunderson
Mrs. Henry Gunderson*
George Guy*
W. G. Hames*
Arthur R. Hanson*
Ellen R. Harper*
Thomas A. Harrington*
A. J. Haskell
Raymond O. Hatcher
L. Walter Henslee*
Mark K. Herley*
Pauline Hill*
Faye M. Hinds
K. E. Hoagland
Harmon Hodges*
Raymond D. Holmes
C. S. Holt*
Irving Homel
Houston Chapter*
C. E. Humphrey*
Robert L. Hunter
John R. Hurley
Thomas Hynes, Jr.
John Ihlder
Alden S. Jaske*
Bette Jenkins*
Mildred Jenkins
O. B. Jennings
Eleanor Johnson
Lloyd Johnson
Myra Johnson*
Roger S. Johnson
Victor Johnson
Robert T. Jorvig*
Carl Kaltenborn
Lloyd C. Kerley
Harold Klorfein
Fritz Krabler*
Fred Kretschmar
Joe C. Lair
Franklyn Lambert
Robert D. Lee*
Stratton C. Lee
Albert N. LeFevre*
John Lemieux*
Jean Lindley
Mrs. James A. Littleton
Pearl Lyford
Joseph Lyons*
Roy B. MacAfee
Helen MacPherson
Mary Maher
Annie L. Mallett
Alva C. Mally
Hudson Malone
James E. Manners
John Mariassy
Bleecker Marquette*
B. H. Marshall, Jr.
Ellick Maslan
Marion Massen*
Glen L. Mathiasen*
Harry Matson
Muriel Mawer*
Carl Mayerhoefer*
Paul R. McCauley*
Elmer F. McClain
J. B. McGinley
John J. McGrath
Marie C. McGuire
Robert E. McKelvey
Florence McKiernan
John McKnight
Harland McPhetres*
Alvin Mermin*
Susie E. Miles*
Alex K. Millar
William Millich
Walter B. Mills, Jr.*
Mary Ellen Minert*
John A. Mingle, Jr.
Ramona Mondragon
H. A. Morse
Frances H. Morton
Robert S. Moyer
Harold R. Mullen
W. F. Nabors*
Dowell Naylor
Mary K. Nenno
Joseph Nevin
Angela Newkirk
Brown Nicholson
James T. Nolan*
Bernard J. Nykiel
Roy C. J. Olah*
Hugh S. Osborne
Edward M. Ouren*
Pacific Southwest Regional Membership Committee*
Victor C. Pangle*
Marian T. Park*
Rosena Park
J. P. Prescott
George W. Price*
E. E. Pruitt*
Dee Ramey*
Jane Rasmussen*
Allen Reed*
W. C. Ress
Sada Ricker*
Marie A. Riesterer*
James Ring
John I. Robinson*
Hewitt Rogers
Rachel M. Rose
Charles W. Ross, Jr.
Eugene Rowan
Ruth Rush*
Ben Ryburn
M. B. Satterfield*
Homer L. Saunders
Wilbert L. Sawyer*
J. Gilbert Scheib*
J. A. Schmid*
Harry J. Schneider
Philip Schorr
John R. Searles, Jr.
Fred Senechal*
Haig Shamshoian*
Robert T. Sharp*
Joseph E. Shea, Jr.
Daniel H. Shear
Phillip Sheffield
C. W. Sherlock*
Milton Shufro
Jack Silverman*
Walter M. Simmons
Robert Sipprell
Homer Slinger*
Mrs. Johnny T. Smith*
M. W. Smith*
W. T. Smith
Haley Sofge*
Harry Solomon
C. S. Sorenson
Mildred Sorodka*
James W. Soske
Karl Spock
E. Robert Squires
Charles H. Stamm
Harry Stefanik*
George Stephan
W. W. Stewart
Ernest Stolberg*
Ernest Suhr
William Sutcliffe*
Olive Swinney*
Russell C. Taylor*
Al Thomas
Willard W. Trask
Philip F. Tripp*
Ida G. Turner
Mitchell Twardowicz*
Betty Valerio
Robert F. Van Auken
B. Finley Vinson
George Wallace*
Eleanor R. Walters*
Samuel Warrence
Walter Washington
Iola Watson
Robert Watson*
Carolyn B. Weaver
Harry B. Weiss*
Frank J. Whalen
Alice E. White
Odetta White
F. W. Widmer
Oliver Winston*
Robert T. Wolfe*
Elizabeth Wood
M. C. Wool*
Grace L. Young*

***Sent in more than one new membership.**

Keeping a good roof over head calls for good maintenance practice

RUTCHER SKAGERBERG
Chairman, NAHRO Technical and Maintenance Section Research Committee; Assistant Director, Architecture and Engineering Branch, Public Housing Administration

Because a roof carries a so-called "bond" that it will last 20 years, let us not take a complacent attitude toward it, even when only eight or ten years of the guarantee period have elapsed. In the first place, the guarantee may not be all we think it is and we may, therefore, find the roofer (if he is still in business) inclined to do the least possible work under his bond—just enough to enable him to "skin by" until the 20 years have elapsed. Then, even though no appreciable leaks may have developed in the first eight or ten years, it is well to adopt and put into practice a vigorous preventive program. Perhaps nowhere will early attention to incipient deterioration pay as big dividends as in roofs, particularly flat roofs.

This article will deal generally with some of the most common roof problems. It will not be possible to present here detailed descriptions of methods for dealing with these problems and for performing all the many repair jobs that roofs require. Instead, we want to deal in this article with the subject of condensation and the related subject of vapor penetration, which, it is believed, are subjects that are not as generally understood as the details of roof repairs. In other words, we shall stress some of the principal *causes* of roof troubles rather than their *cures* because no problem is adequately solved unless the trouble is first properly diagnosed, traced back to its roots, and treated, if possible, at that point.

Flat Roofs

Inspections. Although there might have been very good inspection and apparently good workmanship and materials employed during flat roof construction, some defects show up after the first summer or winter of operation that were not evident during or immediately after construction. Therefore, a good over-all inspection of the roof of every building of a project should be made after the first winter's thaw and during the heat of summer after the roofs have been subjected to high temperature for a few months . . . but before they cool down. Late July is a good time to do this job.

Moisture that was left in the concrete of the deck or that came through the slab from below may have condensed under the roof covering during the cold season. When the sun's heat runs the roof surface temperature up during the summer, such moisture may change to vapor and cause large blisters to form in the roof covering due to the pressure of the vapor. It may also cause some separation of plies, although that problem may come later.

Inspections made on the above recommended schedule will reveal to what extent separation of plies may have occurred and the spots that might need watching in the future. If those spots were marked both on the roof and on a diagram that could be kept in the files, the information would be useful later as a clue to locations where leaks might have originated. Further, it may be found that later periodic inspections can be directed mostly toward those spots for special attention, as they may become weak points in the felt.

But it must also be remembered that whether flat roofs are of smooth asphalt-impregnated roll roofing or are built up tar-and-gravel type, roof coverings *do not wear out—they dry out.* Therefore, as roofs are inspected after each cold season and during the hot season, one of the principal things to look for is evidence that the felt covering is beginning to get a soft, spongy appearance and feel. That condition would indicate that the waterproofing protection of felt fibers is being lost and that preventive measures, in the form of restoration of waterproofing, need to be taken.

Characteristics of Asphalt and Tar. Asphalt as a roof covering will evaporate with heat. Coal tar will soften and run, forming puddles and leaving "islands" of bare felt. These breakdowns occur during hot weather when roof surface temperatures may get 50 to 60 degrees higher than the surrounding atmosphere. When light colored gravel, crushed oyster shell, or aluminum coatings are applied over such black roof surfaces, heat is reflected and surface temperatures will be 20 to 30 degrees cooler.

And remember that not only does tar get soft and flow when hot—but it gets brittle when cooled. In this brittle condition, it will crack and admit water, which tends to freeze, with a resultant speeding of deterioration.

When waterproofing qualities of roofing felts disappear or become ineffective for the purpose intended, steps should be taken at an early date to restore the felts and prevent or, at least, slow down the destruction. When felts dry out, water gets a chance to penetrate. The water freezes between the felt fibers or, in case of hot weather, forms vapor within the mat of fibers, either of which result will further separate the fibers and dry them out. Destruction speeds up and the day of reconstruction (replacement) is hastened—the day when restoration can no longer be made. That's the day when expenses will pile up fast.

Tar is insoluble in the common petroleum solvents that are used for asphalt. Also tar has a high resistance to water, whereas asphalt will "rot out" if it is subjected to water

(Continued from page 243)
and sunshine continuously for considerable periods. Since tar flows with heat, it tends to be self-healing with respect to cracks that form when it is cooled. But it will not flow uphill and cover the "islands" of dry felt left bare because the tar flowed to low points.

The most important characteristic of these two materials is that they cannot be used together. Asphalt must not be used on a tar roof because the pitch (coal tar) dissolves it and creates blisters. And tar should not be used on asphalt roofs, as it will "burn out" the asphalt.

Generally, asphalt roofs require considerable slope to allow water to run off promptly. Therefore, flat roofs are usually of tar-and-gravel type.

A common method of restoring a tar-and-gravel roof is to scrape the gravel into wind rows, apply hot tar, and then return the gravel over the fresh tar. But it is possible to use cold applications on tar roofs. Such applications, besides being more convenient and requiring less labor to apply, have the added characteristic of softening the pools of tar so that they can be spread out again. Furthermore, these applications have a penetrating effect on the dried felts, which is what is needed to revitalize the roof, preserve the felts, give the covering longer life, and effect long-range maximum economy for the project.

The most ideal material to use is one that is compatible with either tar or asphalt, will not run (even on steep roofs), and will not become brittle with temperature changes between wide extremes. Such products are used to a large extent on such difficult roofs as those over large aircraft hangars and railroad stations or, particularly, in areas where the climate is characterized by extreme heat or cold. The Federal Schedule of Supplies lists such materials as fatty acid pitch or cotton seed gum that meet this description.

Probably one of the worst things that can be done to a tar-and-gravel roof is to apply a treatment of coal tar over the gravel. In the first place, that treatment completely destroys the effect of heat reflection—for which the gravel was applied. Then there is no material that can be applied over such a surface that will give satisfactory results. Such a roof covering will have to be replaced and the expense that was saved by not removing the gravel when surface treatment was applied is greatly exceeded by the replacement cost.

Sloping Roofs

Smooth and Mineral Surfaces. Roll roofing or composition coverings are used on sloping roofs, where water rinses off immediately. Such coverings are subject to damage by high winds, particularly if inadequately nailed down. Exposed nails work loose and eventually come out entirely, thus admitting water to the sheathing boards and causing them to rot, with resultant leaks.

One of the most common effects of weather on asphalt-impregnated roll roofing is that of drying out. Once felt fibers become dry enough to soak up water, they disintegrate rapidly. Re-coating with a proper material is the answer to prolonging the life of such roofing. This treatment may be applied by brushing—but a more efficient and economical system is power spraying. In hot climates, re-coating may be necessary once every three years. In cold climates if high humidities persist in the dwellings, vapor migration through the roof structures may cause even more rapid deterioration and, therefore, more frequent re-coating may be in order.

Seams, particularly where loose nails exist, may need covering by strips of saturated fabric properly cemented down. This treatment will not only keep nails down but will seal openings around nailholes and at the edges of the felts.

Shingle Roofs

Where shingles are used in public housing, they are generally of the asphalt composition type. The most common trouble with such shingles comes from high winds, which make the shingles stand up and, if wind is accompanied by rain, water will be forced in and cause leaks. This problem occurs mostly when shingles were improperly nailed. Too few nails were used and generally placed too high on the shingles.

Asphalt shingles are also subject to drying out, when they become lifeless and curl at the corners. These conditions call for re-coating and for cementing down each shingle, particularly in courses near roof ridges. Where roofs are generally badly nailed, so that all shingles must be fastened down, it would be more economical and effective to use a power spray gun to spread the coating, both on top of and underneath the shingles.

Areas around valleys, flashings, and gutters or shingled roofs should all be given proper attention. It is generally considered good practice to apply asphalt-impregnated fabric where patching is needed. This fabric is cemented in place with a good plastic roofing cement.

Concrete Roofs

Concrete roofs leak because they have cracked. The primary repair job is, therefore, that of fixing the cracks. This job is done by cementing fabric over the cracks and then spraying or brushing a coating material over the entire deck.

Selection of priming and coating materials is of utmost importance and must be done with care. Important characteristics of such coatings are: (1) their capacity to remain plastic while at the same time never softening enough to run; (2) retaining waterproofing qualities for at least five years; (3) not oxidizing, cracking, alligatoring, or blistering; (4) retaining a high degree of adhesiveness, yet capable of expanding and contracting without breaking. To extend temperatures within the dwellings, the use of light colors or an aluminum finish is advisable.

Flashings, Gravel Stops

Flashing and gravel stops are frequently to blame for roof leaks. Therefore, it is of greatest importance that they be carefully checked on during each inspection and that preventive measures be applied to their care. Flashings frequently come loose from the sub-structure and open up at the seams. Care should be taken to correct these conditions in a positive, permanent manner. Sometimes the edges of flashing metal must be sealed by covering them with fabric strips properly cemented in place and sealed.

Gravel stops, likewise, need such attention as repair of nail holes and fastening down and sealing of edges.

Parapet Walls, Coping Stones

Construction of parapet walls is usually done in a way that seepage downward through them develops when water gets in near the top. This seepage occurs most frequently when the joints open up between coping stones. Protection against this condition requires inspection and repairs with proper caulking material, sometimes in combination with mortar.

Condensation

There is more evidence each year, as public housing gets older, that water vapor collecting in dwellings

is one of the most destructive of all the agents that deteriorate many elements of structures: rusting of steel sash, failure of exterior paints, disintegration of mortar between exterior brick, decay of wooden structures in crawl spaces. Perhaps the most costly effects of condensation occur in the roofs.

Many years ago it was discovered that wooden roof structures supporting flat, built-up roof covering became subject to decay. This decay was attributed to the passage of water vapor from the dwellings through the ceilings and structural elements above. When this vapor would reach the cold roof covering, it had to stop and there it condensed to form water. This water soaked up the wood structural members and, in some cases, gathered in such large quantities as to cause dripping onto the plaster, with subsequent failure of that material.

Tests performed by the Forest Products Laboratory and reported in Housing Research Paper No. 28 of the Housing and Home Finance Agency under the title *Moisture Migration from the Ground* reveal that water vapor passes quite readily through concrete slabs. This fact was verified by Professor C. E. Lund of the University of Minnesota and reported in a paper entitled "Water Vapor Can Damage Built-up Roofs" that appeared in *Architectural Record* in July and September 1953.

We have observed the effects of this action for many years but perhaps it has not been realized to be as prevalent as it apparently is. There have been examples of built-up roofs on concrete slabs where the insulation under the covering was found to be disintegrated and thoroughly soaked with water. This condition not only had a deteriorating effect on the roof covering but it practically nullified the insulating value of the insulating material.

Exploratory work done by Dr. John Diller of the plant pathology section of the division of forestry of United States Department of Agriculture has revealed that large quantities of vapor are given off from the earthen floors of crawl spaces under houses. Since this source of vapor is a continuous one, even though the rate of moisture escape from the ground may be quite slow, it can contribute perhaps the major share of the vapor that collects in dwell-

(Continued column three, page 356)

GOVERNMENT SPECIFICATIONS FOR ROOF REPAIR MATERIALS

The list below is made up of two types of federal government specifications for materials used in roof repair and is given as a guide for local authorities in procuring such materials.

Federal Specifications

The first type—Federal Specifications—are preceded by a letter and numeral code. They were developed by special federal committees after examination and laboratory and field tests of the materials involved. Such materials are said to be easily obtainable and can be purchased through competitive bidding. The specifications are so written that in each case they cover comparable products of a number of manufacturers and, if used, will be approved in bid documents, as far as the federal government is concerned. The symbols, "SS," "HH," etc., are designations of major groups. For instance, "SS" stands for mineral products and "HH" for insulating materials. "SS-R" refers to mineral products for roofs. The numbers that follow are serial catalog numbers. Federal Specifications are available from the United States Government Printing Office, Washington 25, D. C. at prices ranging from 5 cents to 25 cents each.

GSA Specifications

The second type—General Services Administration specifications—are those preceded by the letters GSA and were developed by that agency to cover purchases that it makes in its "housekeeping" role as the management agency for government buildings. The specifications are obtainable free from Kenneth Milliken, Room 7233, GSA Building, 19th and F Streets, N. W., Washington 25, D. C.

PREPARED ROOFING, FELTS, AND FABRICS

E-SS-R-501—Roofing, asphalt-prepared, smooth-surfaced

SS-R-521—Roofing and shingles, asphalt-prepared, mineral-surfaced

HH-F-191a—Felt, asphalt-saturated

HH-F-201—Felt, coal tar-saturated

HH-C-581a—Woven cotton fabric, asphalt-saturated

HH-C-591—Woven cotton fabric, pitch-saturated

ROOF PRIMERS, PLASTIC CEMENTS, AND COATING MATERIALS

SS-A-701, dated August 1, 1933—Asphalt primer for roofing and waterproofing.

GSA Spec. 438-B, dated October 4, 1945—Priming material, fatty acid pitch base, brushing and spraying consistency (for concrete, masonry and other mineral surfaces)

SS-A-666—Asphalt for built-up roofing; hot application

R-P-381—Coal-tar pitch for built-up roofing; hot application

SS-C-153—Cement, bituminous plastic Type 1—asphalt base; Type 2—coal tar base.

GSA Spec. 278-B, dated December 24, 1948—Cement plastic, fatty acid pitch base (nonbleeding) for use in repairing roofs, walls, and foundations, and as an expansion joint and caulking material. Colors: natural (black), gray, buff, green, and red

SS-R-451, August 1, 1933—Roof coating; asphalt, brushing consistency

GSA Spec. 439-B, dated October 4, 1945—Coating material, fatty acid pitch base (nonbleeding), brushing or spraying consistency as ordered, for foundations, roofs, walls, etc. Colors: natural (black), green, and red

THE NAHRO PRESIDENT'S CORNER

I suspect that the outgoing president of any organization approaches the preparation of his swan song with mingled feelings. After a year of experience in the role of your president and by reason of the many opportunities it has provided to enlarge my own vision and experience, there are many things I should like to tell you in this final message. Unfortunately for me, and fortunately for you, perhaps, space limitations make it impossible for me to express myself fully.

I can recite here, then, only a few of the important impressions and conclusions that are now mine as a result of the past year's experiences.

Professionalism

To begin with, I should like to re-emphasize and reaffirm the importance of NAHRO as a professional organization to people and communities everywhere. It is not possible to tote up the specific significance of NAHRO's diversified activities in the housing and redevelopment fields. However, we must recognize that individual accomplishments take on importance largely because of the collective organizational machinery of NAHRO. Without our organization, I am convinced that the continuity and perspective required to assess individual housing and redevelopment achievement objectively would not exist.

Consistently displayed, also, in our field are evidences of maturing professional competence and integrity—qualities that develop through exposure to the stimulation of a dynamic professional society.

When things start getting a little rough—and I must concede that the road has been a little bumpy these past few years—NAHRO gives us all something to rally around and to work for as a sound bulwark for our ideals and consciences.

Likewise, NAHRO acts as a continual reminder to all of us of the professional responsibility we owe the American public to assure that every person can look to the possibility of having a decent home in a suitable living environment.

The Future

In the second place, even though this has been a rough year insofar as the prospects for the extension of several key programs have been concerned, I leave you with a feeling of renewed confidence and optimism regarding the future. Our difficulties, our conflicts, our skirmishes with opposing ideas and philosophies are measures of the maturity of the housing and redevelopment programs. The fact is they have become so firmly implanted in the very core of American community life that they demand attention and respect for their existence. To think that these programs, or any other program related to the general welfare of people, can flourish undisturbed and unmolested in a democratic society is ridiculous. In fact, the programs flourish, and rightly so, in direct proportion to the degree to which questions are raised—and answered—concerning their validity. In this way, we are challenged and stimulated to keep ourselves on our toes and to keep striving for the self-improvement that is fundamentally necessary to maintain a publicly acceptable service.

Individual Achievement

A third important impression of mine has been the devotion of individual practitioners in housing and redevelopment, from the commissioner level on down. This devotion has always been evident. I would not suggest that my observation of its existence implies that it is something new. The important thing is that the devotion remains and that it has been strengthened, rather than diminished, through the adversity that necessarily accompanies progress.

This devotion is something I have witnessed with all my senses. I have travelled thousands of miles during the past year in connection with my presidential duties. I have been afforded the opportunity of renewing contacts with old friends and of establishing many new ones. I have been to large communities and small ones. I have had a chance to talk to employees of agencies occupying jobs of every description represented in the vast array of responsibilities we assume. Yes, the going has been hard . . . but no one is letting down. Everyone is redoubling his efforts to further establish the mounting evidence that our communities cannot survive and enjoy sound health without the benefit of the programs we administer.

And it is here again that NAHRO makes an indisputable contribution as our professional organization. NAHRO members, as individuals and as agencies, show unmistakable signs of having gained in knowledge and strength through the interchange of experiences made possible by our organization. Don't ask me to put a price tag on this asset of Association membership. Its value is incalculable. We shouldn't have to ask whether or not we are receiving our dollar's worth of return from NAHRO affiliation. If there has been any question on this score in the past, I should like to be able to assure that it will be eliminated in the future. None of us can afford to fail to give NAHRO every support we can muster in terms of finances, time, and energy.

Finally, let me add my words of praise, as have former presidents, for the particular devotion displayed by the NAHRO staff in the performance of their duties. It is easy to say nice things about people but, when they are particularly deserved, words seem especially inadequate. Without the devotion and collective experience of the staff, our organization would be worthless. Officers of the organization may come and go but their dependency on the staff for a vital program will remain.

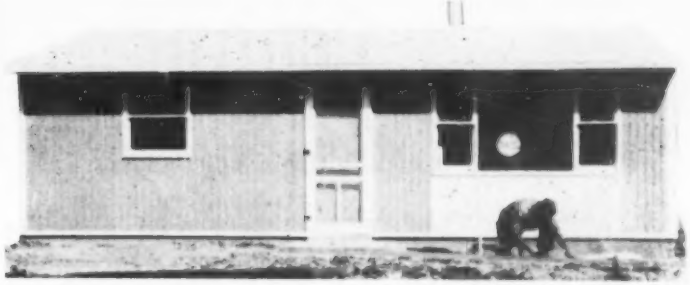
Let me add, nevertheless, the sense of awareness that I am sure is yours, too, of the contributions made by the many work horses among the participating members of NAHRO. My fellow officers, board members, and committee chairmen and members have responded enthusiastically to all calls on them for contributions. NAHRO, as usual, has shown that it can work as a team and I know that this spirit will be perpetuated.

Maturity

NAHRO has now completed its 21st year. Can there any longer be doubt that it has come of age? If there are doubts, it is our responsibility to remove them because, symbolically at least, age 21 means that

(Continued column one, page 356)

FIRST SINGLE FAMILY HOUSES IN LOW-RENT PROGRAM OPENED



The future of the single family house in the federally aided public housing program is getting its first test in two small communities in southern Illinois. Pioneering in an experiment of national significance, the Housing Authority of Calhoun County in September opened two developments of single family, factory built houses—the first in the 17-year history of this country's low-rent public housing program.

The question of the use of the single family house—and the single family prefab—in the public housing program was raised in an article in the January 1954 JOURNAL OF HOUSING (page 8).

Hardin, the county seat of this southern Illinois county, has 22 of the new units and nearby Kampsville has 12.

Public Housing Administration Commissioner Charles E. Slusser stressed the experimental nature of Calhoun County's program in announcing that the projects were being opened for occupancy by low-income families.

"We authorized the county authority to undertake these small pilot projects to determine the possibilities of speed in construction, economy, and compatibility with small town housing patterns offered by this type of construction," Mr. Slusser said.

Hardin has a population of approximately 900 persons and Kampsville slightly more than 400, while the entire county has a little under 7000, according to the 1950 census. Construction of low-rent public housing in small communities of this type was authorized in the Housing Act of 1949, which set aside 10 per cent of the program for rural nonfarm localities.

The Housing Act of 1954, however, requires that all low-rent housing built under new contracts between localities and the Public Administration be in connection with slum clearance programs. But Commissioner Slusser indicated that if the Calhoun County experiment works out well, Congress will be asked to again permit the program to proceed in small towns without regard to the redevelopment program requirement.

Cost Factor

The decision to experiment with prefabs was made when on two occasions bids for conventional housing were higher than costs of low-rent public housing in some of the midwest's principal cities. Discussions between the Calhoun County authority and William E. Bergeron, Director of the Chicago field office of PHA, led Mr. Bergeron to propose the experiment to Commissioner Slusser.

"Bringing a new look to public housing and recognizing the need for reviewing the approach to the solution of rural nonfarm housing problems, Commissioner Slusser authorized us to approve negotiation of a contract between the Calhoun County housing authority and National Homes Corporation of Lafayette, Indiana for 22 standard Cadet prefabricated homes in Hardin and 12 in Kampsville," Mr. Bergeron said.

Total development cost per unit in Hardin amounts to $9896 as against $14,824 based on the last bid for conventional construction, while the cost in Kampsville amounts to $10,963 in comparison to $15,386 for conventional construction. Total development cost includes land, construction, architectural, engineering, legal, and administrative expenses, plus interest and contingencies. For the homes alone, without an equipment cost of $210 per unit, the negotiated price was $5985 per unit at Hardin, averaging 5.04 rooms, and $6024 at Kampsville, averaging 5.17 rooms.

The units required slight modifications to meet PHA requirements.

The Houses

In both towns, all units are on individual but adjacent lots. The Hardin homes include 12 two-bedroom, eight three-bedroom, and two four-bedroom units, while Kampsville has six two-bedroom, four three-bedroom and two four-bedroom dwellings. Equipment includes ranges, refrigerators, and heating units, with heating and cooking done with propane gas. Floors are concrete, colored to match National Homes color scheme for their houses. Exteriors are grooved plywood painted in spruce blue, redwood, or gray with white trim.

It will be possible for tenants to have small gardens.

Although conditions in Hardin and Kampsville made it necessary to design "projects" for this housing, with the authority laying out streets and utilities as in a subdivision, PHA expects to determine from this experiment whether housing authorities in other localities can use similar houses on vacant lots in small towns

(Continued column one, page 356)

Controlling Decay

in subfloor timbers of basementless houses with crawl spaces

JESSE D. DILLER
Pathologist, Division of Forest Pathology, Plant Industry Station, United States Department of Agriculture

Many wartime housing projects, of both temporary and permanent construction, will continue in use indefinitely. A number of these projects were built with insufficient protection against decay fungi, with the result that decay is appearing in them with increasing frequency. Maintenance men are thus confronted with the problem of keeping houses on their projects in livable condition.

The houses affected by decay represent a very small percentage of the buildings on the projects. Frequently decay occurs only in low areas or on filled-in sites where drainage is poor. Decay cases now are the exception but, without preventive measures, new cases may develop. Maintenance superintendents must properly evaluate the decay hazard for each building, particularly in the crawl spaces with continuously high relative humidities. Under such conditions, the subfloor timbers often have a moisture content well above 20 per cent—favorable for the development of wood-decay fungi.

During the past 12 years the division of forest pathology of the bureau of plant industry, soils, and agricultural engineering of the United States Department of Agriculture has conducted investigations on crawl space conditions of numerous wartime houses located in four areas—the middle atlantic, the northeast, the southeast, and the middle west. In part of the work, advice and assistance were received from the technical staff of the Housing and Home Finance Agency. Results of this study will be of interest to maintenance superintendents charged with the responsibility of maintaining buildings with wooden floors and without basements.

Condensation

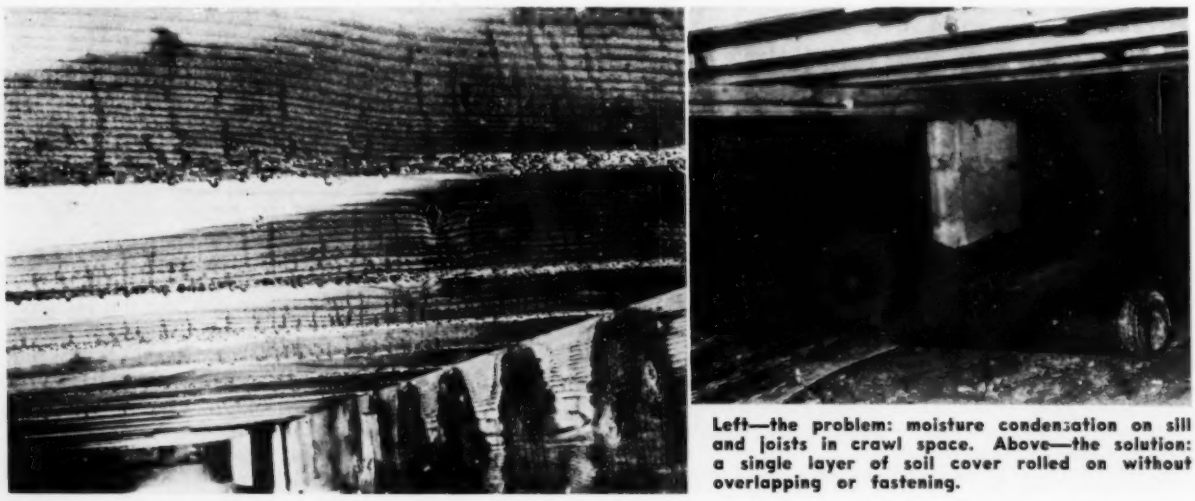
Condensation moisture, or sweating, of sills and joists is the chief factor leading to decay of subfloor timbers (see picture below). This sweating, if long continued, results in a build-up of wood moisture favorable to decay fungi. Crawl space temperatures are favorable for fungus development nearly the year around, particularly if vents are closed. Buildings in which heavy condensation occurs should be located and treated at once, for they will manifest the greatest decay hazard.

Condensation is heaviest during late autumn or early winter, several hours after the first cold spell (see chart page 349). Not infrequently at this time of year there is a temperature differential of 20 degrees Fahrenheit between the outside and crawl space temperatures. In buildings where the relative humidity in the crawl space is never lower than 75 to 80 per cent, condensation will persist on the outer sills and headers and the ends of joists for an eight to nine month period. Condensation persists longest on the north, northeast, and northwest sides of the building; carpenters on housing projects report that by far the greatest number of replacements of sills, headers, and subflooring are required on the north sides of buildings.

High relative humidity in the crawl space is the *important* factor in causing heavy condensation and consequent decay hazard. Visible condensation occurs and wood moisture rises above 20 per cent only when relative humidities of 75 per cent and over prevail for long periods.

Inspections

The best time of year for determination of decay hazard in crawl space areas is in autumn or early winter, following the first cold snap. The maintenance superintendent needs very little equipment for conducting such a survey: a screw driver, nail puller, or wrecking bar for opening access doors or ventilators or for removing small sections of skirting and a flashlight that throws a strong beam of light. A moisture de-



Left—the problem: moisture condensation on sill and joists in crawl space. Above—the solution: a single layer of soil cover rolled on without overlapping or fastening.

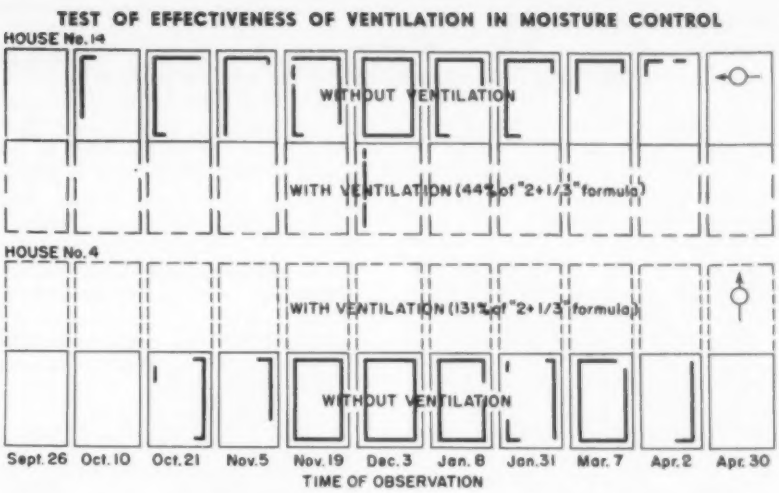
tector (electrical resistance type) is recommended for doing a thorough job of evaluation but it is not absolutely essential. This moisture detector costs less than $100 and is easy and inexpensive to operate. The detector aids the operator in determining whether the occurrence of decay is the result of crawl space condensation or of water resulting from leaky plumbing, overflowing basins in bathrooms, water accumulations underneath linoleum floor covering following mopping, or from improperly installed flashing. Problems due to water sources other than moist soil in the crawl space are easily corrected and need not be discussed here.

The fundamental causes of crawl space condensation problems in about 90 per cent of all houses observed by the writer were the result of improper grading around the house, the absence of gutters and downspouts, and ineffective splash boards—all leading to accumulation of water in the crawl spaces. Correction of these faults, together with regular opening of foundation vents in early spring, should greatly reduce the trouble, particularly in so far as decay damage is concerned.

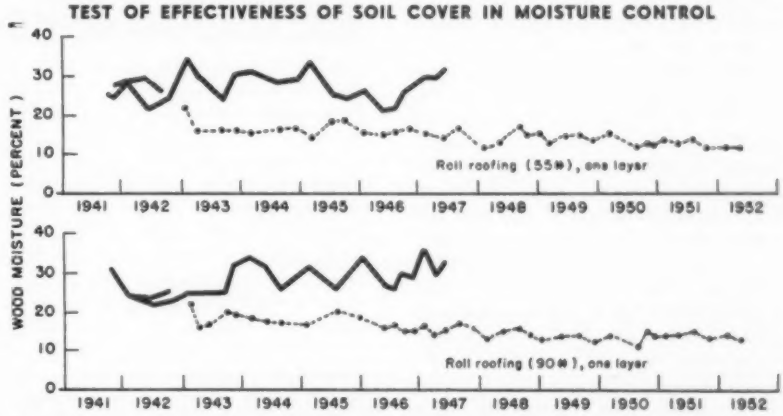
The crawl space vent openings should have a net unobstructed area equal to 2 square feet for each 100 feet of outside wall, plus 1/3 square foot for each 100 square feet of crawl space area. If the vents are covered with 1/16-inch mesh insect screen or louvres, their area should be doubled. The humid crawl space condition, particularly in houses with tight fitting skirting or foundation wall, can be greatly improved by opening all vents, by providing additional vents, or by taking off whole sections of skirting in locations that would not expose the plumbing to freezing during winter months. Crawl space height, i. e., distance from soil to bottom of joists, will largely determine whether ventilation is the only practical measure for keeping the crawl space dry. If clearance is less than 15 inches, installation of soil cover is impracticable.

Another important factor in safeguarding subfloor timbers from decay is the presence of subfloor heating units or ducts. If the ducts, or pipes, run the full length of the building under or between the joists, even though the ducts or pipes are insulated, there is sufficient heat loss to raise the crawl space air temperature and thereby dry the subfloor timbers to 15 per cent or less, even when the soil has a tendency to be damp to wet. But such conditions may lead to an even more serious "attic-condensation" problem. Thus, the warm, moist air in the crawl space may rise through the furred spaces in the wall and condense on the cold rafters and sheathing boards, causing these timbers to become moist enough for decay to develop. In certain extreme cases observed (in Nashville; Washington, D. C.; and Albany, New York), the condensation moisture has dripped and soaked through third-floor ceiling plaster. At two of these locations, roll roofing soil covering was installed and in both cases the attic condensation condition was corrected.

Summer condensation, which occurs at the center of the crawl space area, is usually associated with the use of a very effective insulation, such as glass wool bats, placed between the joists; however, it also occurs in houses in which air conditioning units have been installed. This latter problem needs further consideration and investigation, now that more air conditioning units are



Occurrence of visible condensation moisture on sills and ends of joists of two basementless houses on wet sites and without soil cover in Washington, D.C., between September 26, 1946 and April 30, 1947 is charted above. In both houses, the crawl space was divided by a curtain partition of roll roofing, leaving half of each crawl space with ventilation; half without (gaps in the outlines indicate ventilators in mineral board skirting). The heavy lines within the squares indicate the amount of condensation in both the ventilated and unventilated portions of the crawl space on the days noted.



The chart above shows the maximum per cent of moisture in basementless houses —two with soil cover and two without. The heavy continuous lines are for the two houses without soil cover; the broken lines for those with. Weight of roll roofing for each of the two houses with soil cover is also indicated. The decay hazard in the two houses without soil cover became so great in 1947 that soil cover was installed, hence the heavy lines end at that point.

being used throughout most of the country.

Soil Cover

A cheap, inexpensive, and practical way of reducing dampness in the crawl space of a house is to cover the soil with a moisture barrier (see picture, chart pages 348, 349). The crawl space must be at least 15 inches high to allow room for installing the soil cover. Various materials have been successfully used, which include two layers of 15 pound asphalt saturated felt and roll roofings ranging from 35 pound to 110 pound, double cover—with 55 pound roofing used most commonly; aluminum unmounted foils (.001 to .002-inch thickness); asphalt laminated reinforced papers; slag; and pea size gravel (2¾-inches thick). The roll roofing has continued fully effective after ten years in test. It is expected that the service life of the thinner, inexpensive materials will not be as long as that for the thicker, more expensive covers. The materials range in price from approximately 1¼ cents to 4½ cents per square foot.

Soil cover alone, without any ventilation, has been as satisfactory as when the cover was used with the usually recommended amount of ventilation. No leveling of soil prior to installation and no overlapping of cover strips is necessary. In fact, leaving approximately ½-inch between strips will allow escape of any free water that might temporarily accumulate above the cover following a flash flood. It is not necessary to place the cover flush against the foundation or skirting walls, or to secure a tight fit around piers in the crawl space. Soil cover has been effective in preventing condensation moisture in winter in the New England, middle atlantic, southeastern, gulf, midwestern, and lake states.

Soil cover is installed for decay control; when termites are present, additional measures are needed for their control. Chemical poisoning is recommended by forest entomologists for control of termites that have established themselves in buildings.

Soil cover is not entirely satisfactory in houses infected with either of the two water conducting ("dry-rot") fungi. These fungi not only continue to live under the soil cover (they are soil-inhabiting fungi) but also attack the organic matter in covers of the roll roofing and laminated-paper types. Despite the destruction of organic matter (observed both in 55 pound roll roofing and asphalt laminated, reinforced paper), the covers remain effective as moisture barriers.

Other ways to safeguard buildings against the so-called water conducting fungi are by providing for adequate crawl space ventilation, avoiding the use of wood close to or in contact with the ground, or using preservative treated wood. The division of forest pathology is now conducting extensive tests of nearly a dozen chemicals against the wood conducting fungi in soil and wood. Fortunately, the water conducting fungi are encountered rarely but, when they occur in buildings, they cause serious damage and must be completely eradicated. With only a partial job of eradication, the fungi frequently reinfect the newly replaced wood within just a few years.

Wood destroying fungi, other than the occasional water conducting fungi, are completely controlled by the use of soil cover. When both effectiveness and cost are considered, the added protection of soil cover appears to be worthwhile in all cases where crawl space condensation occurs.

Summary

During the past 12 years, the division of forest pathology of the United States Department of Agriculture has conducted investigations of crawl space conditions of basementless, wartime houses in the middle atlantic, the northeast, the southeast, and the middle west. Many of the houses were built with insufficient protection against decay fungi. The chief factor leading to the decay of subfloor timbers in basementless houses is continuously high relative humidities (75 per cent and over) in the crawl space. During late autumn or early winter (a few hours after the first cold snap), heavy condensation develops on the sills, headers, and ends of joists, particularly on the north, northeast, and northwest sides of the buildings. This causes a wood moisture build-up (20 per cent or over), which persists for an eight to nine month period and is favorable to the development of wood decay fungi.

Recommendations

It is recommended that maintenance superintendents conduct a crawl space survey for evidence of condensation in autumn or early winter. This survey will enable them to evaluate the decay hazard for each building. Crawl spaces in which condensation is heaviest should be treated first. The source, or sources, of water under the building, responsible for the sweating in the crawl space, should be determined and corrected as far as possible. High relative humidities in crawl spaces can often be decreased to the point of safety merely by providing additional ventilation and can be brought under complete control, even without ventilation, by covering the soil with a moisture barrier. Soil cover of 55 pound roll roofing has proved to be very effective for long periods. Aluminum foil and laminated papers have also been effective for the shorter periods in tests. Where termites and/or water conducting fungi are involved, special treatments are necessary for their eradication.

THE LAST WORD—

Since the preparation of this article, preliminary results have been obtained on the performance of soil covers in 35 basementless houses in the south, located in Alabama, Arkansas, Florida, Georgia, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, and Texas. Soil cover materials used included unmounted aluminum foil .0015-inch thick, obtained from three suppliers; asphalt saturated and coated felts designed for use in crawl spaces, obtained from two suppliers; and reinforced asphalt laminated building paper, obtained from one supplier.

All of the soil covers have thus far proved effective in preventing condensation and in lowering the wood moisture below 20 per cent. The continued effectiveness of the various soil covers as moisture barriers is still being tested.

Of these 35 houses, the owners of 24, of their own volition, have closed all vents and access doors. Keeping the vents closed has not resulted in a build-up of moisture in the subfloor timbers nor encouraged termites, as was anticipated by some. In all cases where the vents were closed and soil covers used, the houses have been warmer during the winter months.

The Commissioner's Page

Sponsored by NAHRO's Commissioners Committee

GEORGIA COURT DECISION CAN HAMSTRING COMMISSIONERS

Commissioners of local housing authorities could find themselves hamstrung in making important decisions and taking action on important matters if a recent ruling of the Georgia supreme court sets a precedent and is widely followed in other states. The case—and the decision—was reported in the Court Decisions column of the August-September JOURNAL (page 278).

Gist of the decision was that if at any time an authority does not have a full complement of commissioners, it cannot take action in such important matters as exercising the power of eminent domain. Since local authority commissioners are appointed, an anti-public housing mayor, for instance, or whoever is responsible for appointing commissioners, could effectively frustrate an authority by failing to fill vacancies on the board.

The decision was not a unanimous one. A dissenting justice pointed out that Georgia law specifically provides that "A joint authority given to any number of persons, or officers, may be executed by a majority of them, unless it is otherwise declared." He further pointed out that the housing authorities law does not "otherwise declare."

MARC COMMISSIONERS PLAN WORKSHOP FOR NEAR FUTURE

Commissioners in the Middle Atlantic region, under the leadership of the Very Reverend Monsignor Leo A. Geary of Buffalo, are planning a workshop or series of workshops in the near future at which they can thoroughly discuss commissioners' problems. Although the date and place for the first workshop have not yet been set, suggestions for the program are being circulated and preliminary work is being done. The Reverend Mr. Geary is chairman of the Commissioners Committee for the Middle Atlantic Regional Council of NAHRO and is a past chairman of NAHRO's national Commissioners Committee.

Consideration is being given to including on the workshop program discussion of such subjects as how income limits and rents are determined for a project, annual contributions contracts, and slum clearance and urban renewal under the 1949 and 1954 housing acts.

LOS ANGELES COMMISSIONER IS ON NAHRO BOARD OF GOVERNORS

George A. Beavers, Jr., chairman of the Housing Authority of the City of Los Angeles, long-time NAHRO member and faithful recruiter of NAHRO memberships, will serve on the NAHRO Board of Governors during the next two years. He was nominated for a two-year term that begins at the time of the annual meeting in Philadelphia.

Through Mr. Beavers' efforts, the Los Angeles authority now has 100 per cent NAHRO membership among its commissioners (see box below).

Mr. Beavers has been a commissioner of the Los Angeles authority since 1946 and its chairman since July 1953. He became a NAHRO member in 1947, shortly after he was appointed to the authority. Mr. Beavers is chairman of the board of the Golden State Mutual Life Insurance Company, president of the Los Angeles Urban League, and former director of the YMCA in Los Angeles.

COMMISSIONERS ARE GUESTS AT TOLEDO'S FIFTH "AUTHORITY DAY"

The fifth annual "Authority Day" at which employees of the Toledo Metropolitan Housing Authority entertained their commissioners this summer was met with the same high enthusiasm that it had engendered in previous years (see August-September 1953 JOURNAL, page 292).

Employees of each project vie for honors in making their project look the best when the commissioners make their annual tour of the developments on "Authority Day." The commissioners are also the guests of the employees at a luncheon and brief program following it, during which the commissioners meet all of the employees.

TWO MORE AGENCIES HAVE 100 PER CENT NAHRO COMMISSIONER MEMBERSHIP

The Providence Redevelopment Agency and the Housing Authority of the City of Los Angeles are the latest recruits to the growing list of housing and redevelopment authorities that have recently brought in 100 per cent of their commissioners as individual NAHRO members. Others includes Brookline, Chelsea, Everett, Lynn, Milford, and Weymouth, Massachusetts; Memphis; Fresno City, Fresno County, Oxnard, and Richmond, California; and Milwaukee. A number of other authorities have had full commissioner membership for some time.

Although the number of commissioners enrolled as individual members of the association has increased by 51 per cent—from 116 to more than 180—since May 1953, when an all-out effort was under way for such memberships, the commissioner members represent only 3 per cent of the approximate 6000 commissioners in the country who are potential members.

The recent addition of a number of agencies as 100 per cent commissioner-members, however, shows the results of the current membership drive. And the Commissioners Committee plans to make the annual meeting in Philadelphia the occasion for an even more intensive effort to get individual commissioner members.

STANDARD SPECIFICATIONS AND TESTING SAVE ON PURCHASES

Standardization of specifications on materials and equipment used by the New York City Housing Authority, plus a program of testing and checking the commodities it uses, is saving the authority somewhere in the neighborhood of 15 per cent—or approximately $800,000—annually on its purchases. And in addition, the authority says, the program promotes efficiency in management of its many thousands of apartments and in the operation of its offices.

Standarization

Faced with a rapidly growing program shortly after World War II, the authority found it necessary to devise some means of coping with its huge purchasing program. The first step was formation of a committee on standardization of commodity specifications, which is responsible for adopting standards and promulgating specifications for materials, supplies, and equipment used in the installation, operation, and maintenance of projects. It considers quality, performance, and price of commodities to determine which meet the authority's requirements.

Appointed to the committee were the secretary of the authority, Harold Klorfein, who serves as chairman; Harry A. McArdle, chief of purchase, who serves as secretary of the committee; the authority's specification writer; representatives from the development and management departments; the inspector of supplies; the chief of the systems division; and the chief of office services.

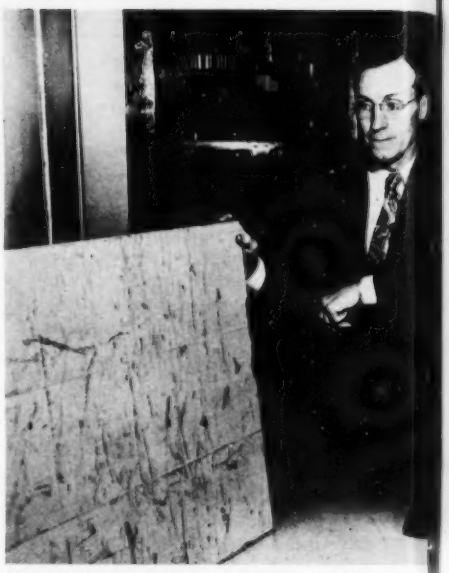
This is the way the committee works:

Mr. McArdle, the chief of purchase, reports to the committee what materials and equipment should be standardized. If the committee consents to the standardization, the specification writer prepares the specifications on an item and they are presented to the committee at a subsequent meeting. If the committee approves the specifications they are duplicated and distributed to all departments of the authority. Use of the standard specifications are then mandatory in all departments.

However, if a department head thinks that a standard specification is unsuited to the needs of his department, he may request reconsideration of it by the committee. The committee may or may not change its requirements but if it does, it issues an amendment. It is also possible for the authority secretary, Mr. Klorfein, to waive the mandatory use of a specification for a department if there is sufficient reason.

Periodically the specifications are re-examined by the purchase division, a procedure that has resulted in revision of specifications and an improvement in the quality of materials and equipment.

Wide use is made of nationally recognized standards and specifications such as those issued by the federal government, national and state sanitary codes, Underwriters' Laboratory, and others.



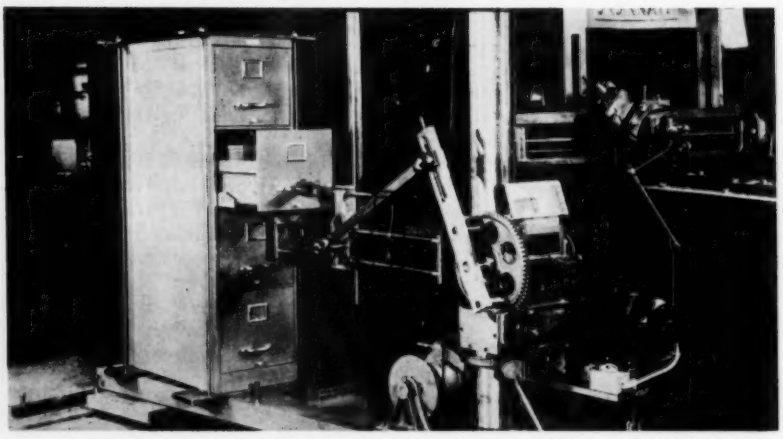
Harry A. McArdle examines asphalt tile on which wax is being tested.

The authority also uses an approved manufacturers brand list for commodities on which construction varies so much that it is difficult to write detailed specifications that will include all acceptable makes. Such items as electric adding machines, mimeograph duplicators, typewriters, and office furniture are included on it. Manufacturers must apply to the authority to be put on the list and must pay for all necessary tests of their products.

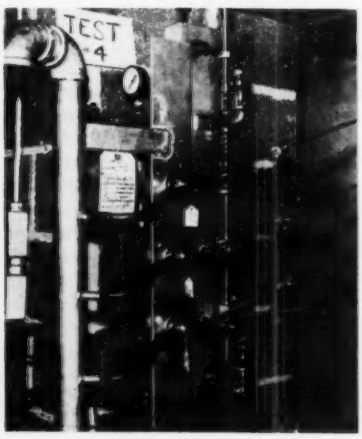
Inspection-Testing

A force of ten inspectors is employed by the authority to check commodities purchased by it and the *(Continued column two, page 356)*

Durability of a file cabinet and how much pull it takes to open the drawers is being tested by the authority with this machine.



How long will faucet washers last? The answer is in the test below.



Selected RECENT PUBLICATIONS

DEFLECTION CHARACTERISTICS OF RESIDENTIAL WOOD-JOIST FLOOR SYSTEMS. Housing Research Paper 30. 1954. Division of Housing Research, Housing and Home Finance Agency. 64 pp., illus. 40 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Factual information on the stiffness characteristics of floors used in residences, including data on the relationship of deflection of floors to plaster cracking and vibrations, is included in this paper. The study covers single-joist construction, where the floor and ceiling are attached directly to wood joists. Also studied is the role played by various components of the floor system in distributing load concentrations between adjacent joists.

PLANK-AND-BEAM SYSTEM FOR RESIDENTIAL CONSTRUCTION; Construction Aid 4. Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency. 1953. 80 pp., illus., charts. 45 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Issued as a guide and design manual for application of the plank-and-beam system for the construction of floors and roofs in modern houses, this booklet discusses the background and advantages and disadvantages of the system; with numerous diagrams gives the engineering principles behind the system; and discusses condensation control.

MOISTURE MIGRATION FROM THE GROUND. Housing Research Paper No. 28. 1954. Division of Housing Research, Housing and Home Finance Agency. 13 pp., illus. 15 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

In addition to reviewing current theory and existing knowledge on moisture migration, the report summarizes recent findings of studies of laboratory specimens simulating slab-on-ground construction conducted at the Forest Products Laboratory in Madison, Wisconsin. Recommendations for moisture control are made for slab-on-ground construction, basement slabs, and crawl spaces.

APPLICATION OF CLIMATIC DATA TO HOUSE DESIGN. Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency. 1954. 152 pp., illus., charts, graphs. $1. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Developed with the aid of the Massachusetts Institute of Technology, this book presents data on regional temperatures and humidity rates designed to aid architects and planners in the development of buildings for hot climates.

The report discusses man as a physiological measure in architecture, regional climate interpretation, calculation of shading devices, radiation on various surfaces, effect of radiation on orientation and site selection, and solar radiation and heat transmission in dwellings.

PHYSIOLOGICAL OBJECTIVES IN HOT WEATHER HOUSING: An Introduction to Hot Weather Housing Design, by Dr. Douglas H. K. Lee. International Housing Activities Staff, Office of the Administrator, Housing and Home Finance Agency. 1953. 79 pp., illus., charts, graphs, maps. 45 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Designed to provide a simple description of the basic physiological principles that should be observed in the design and planning of housing for hot climates, this pamphlet shows by means of maps what the mean temperatures are in different parts of the world, what design techniques are now being used in those places, and what architectural principles should be employed to assure maximum living comfort. Illustrations show good and bad design with respect to both ventilation and shading.

SEPTIC TANK SOIL ABSORPTION SYSTEMS FOR DWELLINGS. 1954. Division of Housing Research, Housing and Home Finance Agency. 34 pp., illus. 25 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

This construction aid is a guide to builders for determining the septic tank soil absorption system that will best meet the conditions of specific areas. It covers the equipment, designs, methods, and recommendations that have been successful and acceptable in many localities in the United States. Research reports, FHA and state requirements, present day standards, and recommendations of other interested groups have been studied to ensure that only the best current practices are included in the booklet.

BUILDING BETTER FROM MODULAR DRAWINGS; The Modular Method in Building Construction. Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency. 1954. 22 pp., illus. 20 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

An explanation of modular coordination construction prepared specifically for construction superintendents and foremen, written in easily understood language, with numerous explanatory diagrams.

BASIC PRINCIPLES OF MODULAR COORDINATION. Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency. 1953. 29 pp., illus. 25 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Prepared to provide supplemental notes for a series of lantern slides used in courses in drafting and construction, this pamphlet consists of illustrations of the principles of modular coordination in construction—"a method of cost reduction in building through standardized dimensions and assembly methods." The illustrations show how construction materials made in standard dimensions of 4 inches or multiples of 4 can be used to simplify construction work and facilitate design.

INTERNATIONAL BIBLIOGRAPHY OF PREFABRICATED HOUSING, by Phyllis M. Kelly and Caroline Shillaber. 85 pp., mimeo., appendix. $1. Albert Farwell Bemis Foundation, Room 7/333, Massachusetts Institute of Technology, Cambridge, Massachusetts.

A wide range of literature available in different languages for countries that produce or make use of prefabricated housing are included in this listing. Items are grouped by country in three categories: (1) books and pamphlets; (2) alphabetical list of references to periodical articles when only one entry is given from a particular periodical; and (3) alphabetical list by title of periodicals where there are two or more references from the same periodical. The bibliography covers the period from 1948 to June 1954, although some earlier references of significance have been included. A list of prefabricating firms in various countries is given in the appendix.

CONSTRUCTION FINANCING FOR THE HOME BUILDER, by Neal MacGlenhan. Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency. 1953. 128 pp., charts. 70 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

This book is intended to be a practical guide for home builders, particularly those who make a living by building new single family houses for sale or on contract. Part one of the book discusses mortgage financing for home buyers and the sources of construction money for home builders. Part two contains a guide for obtaining construction loans, FHA insured loans, VA guaranteed loans, and tips on making a cash budget.

FINANCING THE CONSTRUCTION OF PREFABRICATED HOUSES, by Arthur E. Warner. Housing Research Paper 27, Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency. 1953. 55 pp., charts. 40 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

This study by the school of business at Indiana University, under contract with HHFA, examines case studies of how prefabricated home manufacturers and dealers in the midwest have been able to finance the erection of prefabricated houses. The marketing of prefabricated houses is also described to the extent that marketing characteristics affect the availability of financing.

REDUCTION OF VULNERABILITY IN THE MILWAUKEE AREA, by Oscar Sutermeister. 1954. 73 pp., mimeo. Oscar Sutermeister, 5923 Johnson Avenue, Bethesda 14, Maryland.

Mr. Sutermeister conducted for the

Milwaukee civil defense administration an exploratory study of how to reduce, through nonmilitary defense measures, the vulnerability of the Milwaukee metropolitan area to enemy attack and this booklet is a report of his study. It includes suggestions and recommendations as to how to reduce densities, how to deal with new and expanding industries, and the relationship that residential construction plays in reducing vulnerability.

SIMPLIFIED SITE ENGINEERING FOR ARCHITECTS AND BUILDERS, by Harry Parker and John W. MacGuire. 1954. 250 pp. $5. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, New York.

Problems of site engineering, encountered in drawing up plans for a building project, are explained in detail in this book and solutions are offered. Problems and solutions covered are varied and numerous. For example, included are discussions of the interpretation of deed descriptions from which site plans are plotted; the dimensioning of buildings and sites when the angles are other than right angles; the operation of surveying instruments and the making of surveys and site plans; the computation of areas of irregular plots.

THE THERMAL INSULATING VALUE OF AIRSPACES, Housing Research Paper No. 32. Housing and Home Finance Agency. 1954. 32 pp. 25 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Modern trends in home design, using newly developed materials and novel methods of assembly, have created numerous problems in the field of thermal insulation and water vapor migration through walls, floors, and ceilings, this report points out. Equipment designed to provide summer cooling and winter heating has added to the problem.

The report aims to provide significant data on the thermal resistance of air spaces when faced with reflective or nonreflective materials. More accurate delineation of such information was needed to improve the reliability of essential engineering calculations.

THE JOB OF THE HEALTH DEPARTMENT IN THE IMPROVEMENT OF SUBSTANDARD HOUSING, by Murray M. Bisgaier. 1954. 7 pp. Free. Reprinted from Public Health News, June 1954. Available from Department of Health, State of New Jersey, Trenton 7, New Jersey.

Murray M. Bisgaier, executive secretary of the New Jersey Association of Housing and Redevelopment Authorities and director of Community Housing and Planning Associates, gave this statement as a speech at the 43rd annual conference of state and local health officials of New Jersey. In it he tells how health officials can take part in not only the program of inspection of housing but also can help raise housing standards by participation in over-all programs of urban renewal (see May JOURNAL, page 167, for excerpts from the speech).

SHRINKAGE CHARACTERISTICS OF CONCRETE MASONRY WALLS, Housing Research Paper No. 34. Housing and Home Finance Agency. 1954. 57 pp. 40 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

This report contains factual data designed for use as a guide to producers of aggregates, cement, lime, concrete blocks, and block making machinery; and to engineers, architects, builders, and standards setting groups.

Research was undertaken to determine the causes of the tendency of concrete masonry walls to develop unsightly cracks, which often permit leakage through the walls. It included analysis of four types of aggregates, two types of curing, two types of cores, three thicknesses of face shells, various mortars and cement factors, and two types of horizontal reinforcing. Contents of the report include test procedure, auxiliary tests, wall specimens, summary, tables, and charts.

PERFORMANCE OF PLUMBING FIXTURES AND DRAINAGE STACKS, Housing Research Paper No. 31. Housing and Home Finance Agency. 1954. 32 pp. 25 cents. Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Discussions of such subjects as the diffusion of gases through water seals of plumbing fixture traps, evaporation of water seals of plumbing fixture traps, discharge characteristics of household plumbing fixtures, and hydraulics and pneumatics of 2-inch building drainage stacks are included in this report. Basic research on the problems was undertaken by the Bureau of Standards.

PLANNING RESIDENTIAL SUBDIVISIONS, by V. Joseph Kostka. 127 pp., illus. $3.50. V. Joseph Kostka, School of Architecture, University of Manitoba, Winnipeg, Manitoba, Canada.

Written for the civic administrator, the planning consultant, the civil engineer, and the student, this book coordinates the four aspects of site design and development—planning, engineering, landscaping, and architecture—and aims to be of mutual benefit to each type of practising specialist, as well as to bring about a greater mutual understanding among these specialists. The author, a professor of architecture, does not teach by textbook methods but instead attempts to enlighten the reader through discussion and exposition. The attractive format and liberal use of illustration help make the book readable.

COMMUNITY SERVICES AND ACTIVITIES IN LOW-RENT HOUSING PROJECTS. PHA Low-Rent Housing Bulletin. July 1954. 27 pp. Free. Public Housing Administration, Longfellow Building, Washington 25, D. C.

This bulletin is a report of a study made in order to evaluate the uses of existing community buildings in low-rent housing developments and to be able to give national offices of public and private agencies and their local counterparts information on facilities and programs so that they can extend leadership for project programs where necessary. Moreover, new local authorities that have had no experience in organizing tenant activity programs can benefit from the information.

The data were gathered from two semiannual reports from local authorities and information is analyzed in this bulletin. Community space, community space uses, public and private agency participation, tenant programs, tenant associations, tenant newspapers, and problems encountered in establishing and continuing programs are among the subjects covered.

HOUSING MARKET ANALYSIS — A SYMPOSIUM. 1954. 51 pp., plano. Free. National Analysts, Inc., 1015 Chestnut Street, Philadelphia 7, Pennsylvania.

The papers presented in this booklet cover a session at the 1953 winter conference of the American Marketing Association that was devoted entirely to the subject of housing market analysis. Five panelists discussed (1) basic concepts in the analysis of housing markets; (2) housing market analysis and the building material industry; (3) some non-housing uses for housing market data; (4) sample survey techniques for obtaining housing market survey; and (5) development of sources of housing market data from local financial and related records.

E. Everett Ashley, III, then chief of housing economics of the Housing and Home Finance Agency and now head of the division of plans and programs, was the panel chairman.

EUROPEAN HOUSING PROGRESS AND POLICIES IN 1953, Industry Division, Economic Commission for Europe, United Nations. UN document E/ECE/189, 17 August 1954. 50 cents. Sales Section, European Office of the United Nations, Palais des Nations, Geneva, Switzerland.

This first report on housing progress in European countries covers achievements in meeting wartime backlog, investment in housing, financial techniques, financial charges, rent policies, and building costs. A supplementary report, document E/ECE/190; E/ECE/IM/HOU/50, contains the monographs submitted by the various European countries that were used in making up the first report mentioned.

"The Role of Government in Influencing Changes in Housing in Baltimore: 1940 to 1950," by Morton Hoffman. Land Economics, May 1954. $2 per copy. Land Economics, Sterling Hall, University of Wisconsin, Madison, Wisconsin.

The author of the article examines the extent to which five selected governmental housing programs—public housing, the Baltimore program of housing law enforcement known as the "Baltimore Plan," the Federal Housing Administration's insurance programs, the Veterans Administration's home loan guaranty program, and rent control—influenced changes in the supply, location, tenure, and characteristics of dwelling units and occupancy in the Baltimore area from 1940 to 1950.

In his summary of the data, the author points out that although economic forces and conceptual and statistical limitations of the study preclude the conclusion that government was *the* dominating force in causing housing change during the decade reviewed, the programs studied did play a formidable role in influencing significant changes in Baltimore's housing during that period.

STEPS TO COOPERATIVE HOUSING. 1954. 12 pp., illus. 35 cents. Cooperative

League of the USA, 343 South Dearborn Street, Chicago 4, Illinois.

What cooperative housing is and what it can and can't do for the consumer is discussed in this simple guide. Types of cooperatives, problems of cooperatives, how to go about starting one, financing it, and the principles to follow are included. A section on Federal Housing Administration section 213 cooperatives analyzes the possibilities and limitations of this approach to cooperative housing.

URBAN REDEVELOPMENT: SELECTED ANNOTATED REFERENCES. 1954. 14 pp., plano. Free. Municipal Reference Library, Detroit Public Library, 1705 Water Board Building, Detroit 26, Michigan.

This is a bibliography of current and earlier works on urban redevelopment. It includes a listing of other bibliographies on redevelopment and related subjects.

HOW CAN SOCIAL WORK AND HOUSING WORK TOGETHER? 1954. 23 pp., mimeo. 60 cents. National Social Welfare Assembly, 345 East 46th Street, New York 17, New York.

A housing workshop called "The Social Welfare Stake in Housing," held in New York City in March (see April JOURNAL, page 120), is reported in this pamphlet. Representatives from local housing authorities; from welfare, health, and recreation groups; from schools of social work; from NAHRO; and from such groups as the YWCA, Girl Scouts, and the Urban League spent a day discussing relocation, social work responsibility to redevelopment programs, home ownership, housing legislation in Washington, family relationship to housing, public redevelopment and housing authority relationship to social work, and ways and means of closing the gap between social work planning and the housing and redevelopment planning of communities. The findings of the discussion groups and the key suggestions made by the participants are included in the booklet.

THE GENESIS OF MODERN BRITISH TOWN PLANNING, by William Ashworth. 1954. 259 pp. $4.50. Routledge & Kegan Paul, Ltd., Broadway House, 68-74 Carter Lane, London, England.

The author, a lecturer in economic history at the London School of Economics, presents in this book a study from an historical standpoint of the social and economic factors that have made town planning one of the normal functions of government. Of particular interest to housers is the chapter called "The Improvement of Central Urban Areas," in which the author traces the history of the housing movement in London. The attempts at public control of housing through law enforcement and public aid to housing, redevelopment, and rehabilitation is a story of set-backs, frustrations and experimentation that closely parallels this country's efforts toward rebuilding our cities.

A BRIGHTER FUTURE FOR AMERICA'S CITIES. 1954. 149 pp., $1. Chamber of Commerce of the United States, Washington 6, D. C.

In this report on the Businessmen's Conference on Urban Problems sponsored by the Chamber of Commerce and held in San Diego in early March, urban renewal, city planning, and public housing are discussed. Included are papers prepared by such authorities as James W. Follin, director of slum clearance for the Housing and Home Finance Agency; Paul Opperman, director of planning for San Francisco; and Charles B. Bennett, director of planning for Los Angeles. Questions and answers that came up during the discussion sessions are reported on.

NIMLO MODEL ZONING ORDINANCE, edited by Charles S. Rhyne. 1954. 43 pp. $2. National Institute of Municipal Law Officers, 726 Jackson Place, N. W., Washington, D. C.

In this booklet, NIMLO has published another in its series of model ordinances covering a wide variety of subjects. The provisions included in this ordinance are thought by the editor to represent the most advanced and sound thinking in the field of zoning ordinances but he points out that no model zoning ordinance can be devised to meet the needs of all cities.

METROPOLITAN LOS ANGELES: ONE COMMUNITY, by Mel Scott, 1952. 208 pp., illus., maps. $5. METROPOLITAN LOS ANGELES: ITS GOVERNMENT, by Helen L. Jones and Robert F. Wilcox. 1952. 323 pp., illus., maps. $5. (Both volumes on one order, $9.) The Haynes Foundation, 2324 South Figueroa Street, Los Angeles 7, California.

Metropolitan Los Angeles: One Community inventories the community's resources—and evaluates the facilities that are provided to meet its residents' needs. It emphasizes the importance of planning by and for its citizens so that the community can keep pace with its expanding responsibilities.

Metropolitan Los Angeles: Its Government presents the reader with a view in perspective of the functions of the government of the county of Los Angeles, the city of Los Angeles, and other municipalities and districts in the Los Angeles metropolitan area.

NEW MEMBERS—

(Continued from page 341)

Miss Elizabeth McKee, Nashville
Mrs. Margarette W. McKeon, Washington, D.C.
E. Greer McKissick, Salinas
Joseph P. McMurray, New York
William E. McPhee, New York
Bernard L. Moses, New York
Gene Moss, Clarksville
Mrs. Blanche Murphree, Nashville

Howard J. L. Newkirk, Salinas
Miss Cushing Niles, Baltimore

Miss Naioma B. Osborne, Nashville
Mrs. Andrienne Otis, Detroit
Thomas O'Toole, St. Louis
Miss Naomi Owens, Detroit

Warb J. Peavy, Chattanooga
Francis J. Pennell, Portsmouth
Thomas Perrotti, Newport
George Peters, San Diego
Gregory Petreas, Pittsburgh
Miss Annie Phillips, Detroit
Frank E. Pickett, Los Angeles
Ernest J. Porter, Portland
Timothy A. Purcell, Providence
Mrs. Caroline Putnam, Springfield

Frederick H. Randleman, Salinas
Bruno C. Reich, Jr., Fort Worth
Edward Q. Reinhart, Wilmington, Delaware
Vivian O. Rider, Portland
Andrew M. Robinson, Baltimore
William H. Rodgers, Providence
Francis J. Rose, Milwaukee
John H. Rushing, Lebanon
Victor Rykowski, Salinas

Mrs. Elizabeth Sieber, Salinas
Luther C. Small, Worcester
Roy C. Speed, Tuscaloosa

Miss Bessie G. Thompson, Jacksonville
Herb Tucker, Sr., Tacoma

William C. Varnado, Detroit
L. A. Vie, Los Angeles

Morris S. Waldman, Providence
Mrs. Corrie S. Walker, Columbus, Georgia
Fred Walsch, Baltimore
Tom Ware, Corpus Christi
Kenneth G. Waters, Toronto
Mrs. Miriam Weyrick, Akron
Amos B. Whalen, Massena
John W. Whitaker, Jacksonville
Theodore Weinstein, New York
Robert A. Willis, Louisville
Mrs. Mabel V. Wolf, Salinas
Charles R. Wood, Providence
J. Leonard Woodroof, Nashville
Mrs. Helen Wysong, Los Angeles

Jay Ybarra, Salinas

NEW AGENCY MEMBERS
Alaska Housing Authority

CAMPAIGN BOX SCORE

Here's the total new member tally by region since the drive began:

	Goal	Score
New England	113	81
Middle Atlantic	509	197
North Central	372	115
Southeastern	327	165
Southwest	266	164
Pacific Southwest	249	79
Pacific Northwest	135	37

ELIZABETH WOOD—

(Continued from page 334)

NAHRO affairs throughout her 20 years as a member of the Association. She has served two terms as a vice-president of the Association, one term as treasurer, and another term on the Board of Governors, in addition to holding office in the North Central Regional Council. She has also served on numerous national and regional committees and has been a speaker on the program at many of NAHRO's annual conferences.

In a September 8 article on Miss Wood's dismissal, the *Christian Science Monitor*, commented: "Miss Wood is indeed a controversial figure, but one thing is not controversial: much that Miss Wood has accomplished will remain. . . Some 60,000 people who are living or have lived in the projects can give testimony to the permanent value of Miss Wood's work for Chicago."

NEWS NOTES—
(Continued from page 308)

The idea of government participation in home mortgaging is not entirely new in Britain. Legislation put on the books in 1949 under the socialist government authorized local governments to underwrite builder loans to home buyers. But the new angle introduced this year puts the national government behind a portion of the risk. Under the 1949 law neither municipalities nor builders showed themselves ready to venture into the program. Under the new plan, some 400 building societies have evidenced willingness to give the guaranteed loans a try.

Home down payments under the plan can be from 5 to 10 per cent of a home's value, with monthly payments at about $25.

SINGLE FAMILY HOUSE—
(Continued from page 347)

where paved streets, sewer and water mains, and utility systems already exist. By using such lots, the costs of laying streets and installing utility lines could be eliminated, together with the time required for these installations, which contributes to cost.

Commissioner Slusser has stressed public housing as a transitional step that should carry a low-income family along only until the family can afford to begin buying a home. A possibility seen in this type of program, if the experiment works, is to offer the homes on a basis that will allow tenants to apply their rent toward purchase.

"Details of cost, adequacy, and speed of construction of this housing in both towns will be studied carefully," Mr. Slusser says. "Only then can proper evaluation be made of the merits of prefabricated units for low-rent public housing."

NAHRO PRESIDENT—
(Continued from page 346)

maturity has been achieved. We are pledged, as never before, to assuming and fulfilling responsibilities, whatever they may be or however they arise. As I noted earlier in this final article, we all recognize that we have had some ups and downs in our field. But also, as I hope I have conveyed, these struggles too are part of maturity. We can expect more crises and we should see in them the opportunity to improve our personal performance and our over-all program goals.

Personally . . .

During this past year I have reviewed a wide variety of topics in this President's Corner. The sentiments expressed have been heartfelt and the response to them has been most gratifying. My comments have made no claim to omniscience. The thoughts I have expressed have been neither startling, new, nor profoundly conceived. I like to think of them as good, plain, down-to-earth, common sense principles that have a tremendous bearing on our future courses of action and accomplishments.

I thank each of you for the cooperation and cordiality that have made my term in NAHRO office an experience never to be forgotten. It is one of those treasures of life that unfortunately cannot be gained by everyone and for which, in real humility, I am most appreciative.

Give NAHRO, its future officers, and other leaders every support you possibly can. Remember that you are not doing it for them but for yourself. And then remember that it is important to do it for yourself because, thereby, people everywhere in this nation will be able to grow and develop more perfectly in our democratic society and live with the measure of happiness and contentment that they so rightly deserve.

Oliver C. Winston, October 1954

STANDARD SPECS—
(Continued from page 352)

authority also maintains an extensive testing program.

For instance, tests for cleaning efficiency of detergents are made by laboratory methods prior to award of a contract in order to determine that they meet the authority's standards. Coal samples are tested regularly by the New York City testing laboratory for analysis of moisture, ash, fixed carbon, BTU, and fusion point. Fuel oil is also checked regularly and paints are sampled and tested by a commercial laboratory.

Savings-Efficiency

Advantages of the program are numerous, the authority says, not only in cost savings but in efficient and safe operation of its projects. As some of the advantages, it cites:

1—A single standard for maintenance materials permits issuance of uniform job instructions for each project, resulting in economical use of materials.

2—Standarization permits procurement of larger quantities of fewer varieties of items, thus achieving lower costs.

3—Standardization is being used to promote greater safety for tenants and employees.

4—Consolidated purchasing, resulting from standardization, makes it possible for project storekeepers to gear their inventories and requisitions to a schedule that can be kept fairly uniform from year to year.

ROOFS—
(Continued from page 345)

ings. It is recognized that cooking, laundering, burning unvented gas burners, and other living processes are important sources of water vapor in dwellings. But where drying of a family wash may result in evaporation of two or three gallons of water once or twice a week, 1000 square feet of soil in a crawl space may give off as much as 12 gallons of water in 24 hours in the form of water vapor. When it is considered that this process goes on every minute of every day and is intensified during rainy seasons and when snows melt, it is evident that attention must be given to it.

In working to overcome roof problems, therefore, it is equally important that the ground under buildings be conditioned so that it will not add to normal roof deterioration. The accepted procedure is to cover crawl space ground with a sheet material that will prevent vapor from escaping from the ground. That material must be as nearly a perfect vapor barrier as possible; it must be flexible, free from attack by fungi (mildew), and, of course, as easy to apply and as low in cost as possible.

As Dr. John Diller points out in another article in this issue of the JOURNAL, the covering of crawl space floors is essential to prevent decay of wood under the floor of the building. We want to emphasize here that such cover is needed just as much under concrete floors and for masonry construction as for frame buildings.

While crawl space ground cover is important for the preservation of roof cover, whether on wood or concrete decks, it will serve the additional purposes of (1) minimizing deterioration of interior and exterior paint and of masonry of exterior

walls; (2) preventing the buckling and loosening of wood and asphalt tile floors; (3) stopping the rusting of steel sash and eliminating the consequent need for painting it; (4) arresting the sweating and consequent corrosion of piping and other steel items in crawl spaces; and (5) cutting consumption of fuel or heating by reducing heat loss as a result of keeping windows and other structural members dry.

Importance of Quality

Since in the maintenance operation manpower is its most costly component, it is extravagance to waste it. There are few better ways, if any, to waste manpower—which also means to waste money—than to apply manpower on materials of poor or improper quality. Some materials or equipment, like refrigerators and electric motors, are manufactured under strict codes or standards and guarantees and their performance can often be tested quickly and easily. Furthermore, the amount of manpower used to install such items is relatively small compared to the cost of the items.

But when it comes to applying roofing materials, paints, etc., a very large part of the cost of the job is involved in labor and supervision, frequently 75 per cent of the total. Also it is easy to dilute or otherwise adulterate roof treating compounds to reduce the cost per gallon and to get wider coverage.

It is very important that the right material be used in the proper quantity for the job. To make sure that this procedure is followed, it is usually best that the project purchase its own material and, unless it has ample and proper labor force and equipment to do the job right, it can contract for the labor. A good inspector and supervisor who will look out for the welfare of the project are usually necessary to see that the work gets done as agreed.

Remember, in connection with all maintenance work, it is not so important what is paid per gallon or per square foot for material for a particular application as what the completed job will cost—and particularly what maintenance will cost over a 40 year period. The most expensive material is the low priced one that is improper for a particular application or is of a low quality.

Wasting manpower on poor or questionable materials is extravagance of the first order.

IN SHORT—

(Continued from page 340)

young architects to design moderately priced homes that can be used and maintained with a minimum of effort.

Some of the ideas already suggested for houses easy to live in: suspended ceilings made of material so light that even a handicapped person can take them down and clean them; an intercom system so arranged that a person at the back door can answer a call at the front; elevators in place of stairs; glass all over the place for visual openness; and lighting that doesn't glare in one spot and fade in another.

Promoter of the special study is California architect Russell G. DeLappe, himself a cardiac victim, who realized how much his profession could do to help those with heart conditions like his own.

SEVERE HEAT, POWER SHORTAGE EXPECTED—IN 2500 YEARS OR SO

Looking for something to worry about? If so, borrow the troubles of civilization in the year 4454 when, according to a British scientist, a severe power and heating problem may exist. The earth's resources of coal, oil, and raw materials for atomic power may run out by then and efforts may have to be made to tap the earth's furnace-like core for more power and heat. These observations were made by Lord Dudley Gordon addressing 4000 scientists attending a recent meeting of the British Association for the Advancement of Science.

ARCHITECT IN DENMARK DESIGNS A BUILDING WITH 'FLEXIBLE' UNITS

Danish architect Gehrdt Bornebusch has come up with a solution to the problem of a family's changing apartment size needs—an apartment that changes size. Mr. Bornebusch has designed an apartment building with no load-bearing walls so that room partitions can be moved around to alter the size of the dwelling units as need dictates. The weight of the floor is taken over by 11 main columns, each of which consumes little more space in a room than a fireplace, and by numerous secondary columns.

The flexibility of this design allows a one-room efficiency apartment to grow into a 10- or 12-room suite, if desired, or to diminish from a large apartment to a smaller one as the number of occupants grows smaller.

Style of decoration in Bornebusch's building is also flexible. The tenant can ask for the south exposure of his apartment to be all glass—or he can specify enameled panels instead. A corridor runs along the north side of the building rather than through the center, as in conventional apartment construction. Walls between the corridor and living areas are opaque. Each apartment can have a balcony facing south, if desired.

MORE SPACE, FACILITY, COLOR FORESEEN FOR FUTURE KITCHENS

Colorfully decorated refrigerators, ranges, and air conditioners; newly designed equipment that is attached to the wall rather than the floor; and combination refrigerator-deep freezers all in one unit—these are some of the features that may be common in the American kitchen of the future. These and other variations of kitchen arrangements were prophesied by Servel, Inc. at a recent display of its products in Chicago. The new ideas were contained in a "future room" display of Servel's mock-ups of products which may someday go into production.

The "model" kitchen provided more space, more convenience, and more color. Space was gained by recessing ovens and refrigerators into the walls and combining deep freezers with refrigerators; convenience was provided by elevating refrigerators and ovens at least 18 inches off the floor level for easier reach, and color was added by substituting decorated surfaces for the standard white used on present-day kitchen equipment.

CAST IRON SOIL PIPE INDUSTRY ESTABLISHES STANDARDS CODE

"C.I." marked on cast iron soil pipes and fittings is a new symbol of economy and efficiency in plumbing work for home builders. It's the cast iron soil pipe industry's new seal of quality indicating that pipes and fittings bearing that seal have been tested by new standards for the industry set up by the Cast Iron Soil Pipe Institute.

The institute's standards will effect 80 per cent of the entire industry and will require mandatory inspection of pipes and fittings. Under the standards only two basic sizes—service and extra heavy—will be used in the manufacture of cast iron soil pipes and fittings and all pipes bearing the new "C.I." seal will be interchangeable with any others, though the manufacturer may not be the same.

For Underground Pipe Corrosion—

when is it advisable to put a cathodic protection system to work?

E. R. SHEPARD
Washington, D.C.

It has now been some 25 years since cathodic protection of underground pipe lines as we know it today was put in use. The application of this method to the prevention of corrosion of isolated gas and oil lines is well known and its value and effectiveness have been so thoroughly established that further endorsement or description is not intended at this time. However, in view of the long and successful application of this principle to isolated lines, it would seem desirable to inquire into the reason or reasons for the system's having been so largely restricted to that type of structure and for having found so little application to the mass of vulnerable underground metals in towns and cities involving pipes of different sizes, materials, and with different types of joints and involving, too, a variety of lead sheath cables and other types of metallic structures.

One can search the literature in vain for reference to a large-scale application of cathodic protection under metropolitan conditions. To be sure, there have been some local applications of galvanic anodes, as in Houston, but no major use of rectifiers in strictly city networks, so far as the writer is aware. The mass of piping in oil refining and production areas that is often included under a cathodic protection system may approach city conditions but such pipe lines usually lack the cast iron water mains and services and the multiplicity of power and communication cables that complicate the application of the cathodic protection system to city conditions.

Let us consider in detail just how the city problem differs from that of the isolated pipe line. In its usual form, the latter involves a straight-away, cross-country, steel line with welded or threaded joints and of a single diameter. The application of cathodic protection to such a line is relatively simple, both from the standpoint of design and installation. The design will, of course, involve some preliminary study of the electrical resistivity of the soil and the selection of appropriate locations for anodes. Local tests with a storage battery or welding generator will provide the necessary information on which to compute the current requirement per mile. The problem is not difficult and the effects can be predetermined with a fair degree of accuracy. Of course, complications are frequently encountered, such as approach to or interference with other lines and the inclusion of tank bottoms, well casings, and secondary piping within the system to be protected. Such problems are handled in the normal course of installation and seldom present serious difficulty.

In cities, the typical network includes a system of cast iron water mains, with lead calked or mechanical joints, and iron or copper services; a system of steel or cast iron low pressure gas mains or services; and frequently high pressure gas mains with a few services to large consumers. The low pressure gas pipes and the water pipes are usually interconnected through numerous residential gas water heaters and other appliances. Also stray contacts usually exist between the two systems, both under ground and in buildings. Frequently Dresser couplings exist in the gas mains and services that may or may not be electrically continuous. In addition to the piping systems, there is a multiplicity of lead cable sheaths, including those used for telephone, telegraph, fire alarm, and police call systems, as well as those for street railway lines and for light and power connections. It is obvious that any attempt to apply cathodic protection in such a community would require the joint action and cooperation of the several interests involved, as independent action would lead to no end of interference and confusion.

The modern large housing project presents a problem intermediate between the isolated pipe line and the congested city grid of utility structures. In such projects, the gas and water pipes can usually be isolated from outside contacts by the use of a relatively few insulating joints in the supply lines, after which cathodic protection can be applied without encountering the complications incident to more congested areas.

The necessity or feasibility of applying cathodic protection to gas and water pipes will depend upon many local factors, all of which must be carefully evaluated before reaching a sound decision. Important among these factors are: (1) degree or severity of soil corrosion; (2) electrical resistivity of the soil; (3) character of pipe coatings; (4) whether gas and water pipes are interconnected through gas water heaters; (5) character of joints in gas pipes; (6) available space for anodes; and (7) electric power rate.

Degree of Soil Corrosion

In soils known to be moderately or highly corrosive, cathodic protection probably offers the most economical solution and can be employed with little fear of making a mistake. In slightly corrosive soils where new installations are under consideration, suitable coverings or wrappings will often provide adequate protection for a number of years. On old installations where occasional corrosion failures occur, there is always the question whether it is more economical to make local repairs as failures occur or to install cathodic protection. Occasional failures on water pipes are easily located and present no serious problem. Leaks in gas pipes are difficult to locate and involve a loss of gas and even a hazard to life and property. All of these factors require careful consideration in arriving at a solution to the problem. In some housing projects with which the writer is familiar, corrosion trouble has been confined largely to sporadic or isolated cases. These problems usually occur in filled ground or at local seeps or wet spots. Some leaks have occurred near the point of entrance of the gas service to the building, where the character of the backfill was evidently a contributing factor. As to what importance to attach to such failures in areas of generally noncorrosive soil is indeed a difficult question. To apply general protection where only a very small proportion

CATHODIC PROTECTION SYSTEMS EXTEND THE LIFE OF UNDERGROUND PIPING INDEFINITELY

Pipe corrosion is a luxury you can't afford . . . and every-day, corrosion damages thousands of dollars worth of underground piping and storage tanks.

HARCO engineers can install complete cathodic protection systems to extend the life of your service lines handling water, gas, steam, fuel oil, etc.

HARCO JOB-ENGINEERED SYSTEMS provide all necessary testing, drawings, materials and the installation.

HARCO INSTALLATION CONTRACTING is completed to customer's specifications and covers as much or as little as the job requires.

Write today for catalog or call MOntrose 2-2080

WINTON TERRACE, CINCINNATI, OHIO
In this development, HARCO protects 21,590 feet of pipe and fuel oil storage tanks serving a 90 unit dwelling area.

ALTGELD GARDENS, CHICAGO, ILL.
More than $300,000.00 worth of underground piping serving 1500 dwelling units is protected by HARCO cathodic system.

VINCENNES, INDIANA
HARCO protects more than 11,000 feet of gas and water piping serving 42 dwelling units.

4076-HC

THE Harco CORPORATION

17017 Broadway • Cleveland, Ohio

of the pipe is in need of it is not necessarily the correct procedure. It is not unlikely that local repair of sporadic failures, using wrapped pipe, will afford the most economical solution and largely forestall future trouble. Backfilling with sand or noncorrosive soil in small areas of highly corrosive soil or the installation of galvanic anodes, or both, will further insure against such local corrosive action.

Electrical Resistivity

Electrical conductivity, the reciprocal of electrical resistivity, is often taken as an index or measure of the corrosivity of a soil. While it is true that soils of very low electrical resistivity are always very corrosive, the converse is not necessarily true. Severe corrosion sometimes occurs in soils of high electrical resistivity but is far less common than in soils of low resistance and is more likely to be of a local or sporadic character. Relative resistivity also seems to be a factor. Long line current effects have been found to exist between regions of different resistivity, the pipes in the soil of lower resistivity being anodic to the pipes in the soil of higher resistivity. The effect is not one of resistivity per se but involves moisture content and other soil characteristics. When it comes to cathodic protection, electrical resistivity of the soil is of major importance. The use of magnesium or other galvanic anodes is not practicable on bare pipe in soils of high resistivity. One or two thousand ohm-ems is often given as the maximum soil resistivity in which such anodes may be employed economically. Above that value, the current output is small and the number of anodes required is prohibitive.

Where rectifiers are used, soil resistivity not only determines the number of anodes required for a given installation but it has a marked effect on the distribution of current throughout the area to be protected.

As the electrical resistance of an anode to ground is roughly proportional to the electrical resistivity of the soil, it is obvious that with a given rectifier voltage, the number of anodes required for a given installation, and therefore the cost of the anode bed, will be proportional to the soil resistivity. An even more important effect of soil resistivity is its effect on the throw or distribution of the protective current to the piping system concerned. The higher the soil resistivity, the steeper will be the potential gradient in the soil near the anodes and the more unequal will be the distribution of current to the pipes. Pipes near the anodes will collect excessive current and tend to be over protected, while more remote pipes will tend to be under protected. This disparity will increase in proportion to the electrical resistivity of the soil. Because of this effect, it is necessary to install the anodes at a considerable distance from the nearest pipes to prevent their capturing an excessive amount of current at the expense of the more remote pipes. In soil of low resistivity, the potential gradient is less steep and the distribution of current to the pipes more uniform. It is difficult to prescribe a definite limit for distances between anodes and pipes. Where possible, the separation should not be less than 75 feet and, in soils of very high resistivity, considerably more. The greater the distance, the more uniform the distribution will be and the smaller the total current required for complete protection.

Persistence on the part of Peter N. Molligan, assistant maintenance superintendent of the Housing Authority of New Orleans, in tracking down the source of gas leaks near one of the authority's projects is credited with saving the residents of the area from serious explosions and possible injury or death. Commissioner Charles E. Slusser of the Public Housing Administration has written Mr. Molligan a letter of commendation for his resourcefulness, as has Marshall W. Amis, director of the Fort Worth field office of PHA. The commissioners of the authority have also expressed their appreciation of his outstanding work.

Mr. Molligan (pictured above using a meter for testing explosive gasses) twice within five days was called upon to locate the source of gas leaks. When he determined that the leaks of explosive mix were not coming from a source within project boundaries, he continued his search until he found them and then notified the city's public service company, which repaired the leaks.

Protective Pipe Coatings

Pipes with protective coatings may need additional protection in highly corrosive soils to take care of mechanical abrasions and pinholes in the coating. This protection may be accomplished by the use of magnesium or aluminum anodes, as the current requirement is usually very small. Where rectifiers are used, some surplus capacity should be provided to allow for deterioration of the coating with time. Dipped or thin coatings, without reinforcement, provide but little insulation and pipes so treated should be considered as bare when applying cathodic protection. Well coated and wrapped pipes, except in highly corrosive soils, may require no cathodic protection during the first few years of service. Periodic inspections will determine the need of such protection.

Interconnection of Pipes

Where water pipes are of nonferrous material or where corrosion problems are confined to gas pipes, it may be desirable to restrict protection to the latter pipes only. This treatment is possible but the problem of insulating the two systems from each other may prove to be more burdensome and expensive than including the water pipes within the protected network. In one Washington project having central hot water supply and relatively few gas services, it was found possible to isolate the gas pipes by installing insulating unions in the gas services just ahead of the reducing diaphragms. In another project, having gas water heaters, no attempt was made to separate the two systems. However, to isolate the combined project network of pipes from the city supply lines, it was necessary to install four insulating joints in 3-inch and 4-inch gas mains and 20 insulating joints in 2-inch water services, a procedure that added materially to the cost of cathodic protection.

Insulating Joints

The problem of protecting cast iron mains with lead calked or mechanical joints may be difficult. Both types of joints are variable and uncertain with respect to electrical resistance. The fact that cast iron mains have in the past been rendered

(Continued column two, page 362)

Hints to the Housing Manager

GREENWICH PROJECT PLAY AREA DIVERTS 346 KIDS, SAVES LAWNS

One way to hit two birds with one stone was demonstrated recently by the Greenwich, Connecticut housing authority's executive director, Richard S. Hubert, who has found a way to cut grounds maintenance costs at one of the authority's projects and make a couple of hundred kids happier to boot.

The problem: an estimated 346 children living at the authority's state aided Armstrong Court were creating a maintenance problem by playing on the project's lawns and neither fences nor admonitions had any effect on them.

The solution: to create some other place for the children to play. The authority happened to own property adjacent to the project that was available for conversion into a playground. To put the idea into effect, Mr. Hubert first inquired of other housing authorities about their experiences in handling recreational facilities and then sought advice from the town's recreation department on how to lay out a playground with a baseball diamond, basketball backstops, a volleyball court, and sand boxes.

The second step was setting up the field, an operation completed at a minimum of expense by using the authority's maintenance crew as much as possible.

The third step was a recreational program. The tenants themselves worked out, and now manage, the program with only an occasional assist from the authority. The playground has already produced a baseball team, sponsored by the local gas company, that now participates in a local league. Further, the playground is reported to be popular not only with the kids but also with the adults who occasionally get time to go out for a game of volleyball. The authority, meanwhile, has accomplished its original goal—better looking lawns.

GIRL BASEBALL LEAGUES BORN WITH BETHLEHEM AUTHORITY AID

Another housing authority with an eye to promoting recreational activities for its project tenants is the Bethlehem Housing Authority, through whose cooperation a new Junior Miss Baseball program recently started rolling in Bethlehem.

The Junior Miss Baseball idea, a program of girl baseball leagues, originated with John Daday, the sports director at local radio station WGPA, who developed the idea from a speech he heard about the Little League for boys. One of the first groups to welcome and support the proposal was a group of tenants at the housing authority's Marvine Village, who expressed so much interest that the authority backed them up with offers of baseball diamond facilities, plus assistance in purchasing any equipment required.

The Marvine Village tenants then really went into action. They organized a squad of boys to lay out a playing field, put a fence around it, built a refreshment stand, and installed bleachers secured from the city. The Junior Miss Baseball flag (shown below) was made by one of the ladies in the project.

The girls' baseball idea soon picked up support from other authority projects — Pembroke Village and Clearfield Village — where fields have been made available for practice and league games. Girls living near the projects were welcomed into the project teams and soon the idea spread into two Bethlehem suburbs, where an additional 240 girls have formed their own teams and leagues. Already there are 16 teams comprising five leagues in the area

Mr. Daday, initiator of Junior Miss Baseball, has been named commissioner of the program and, in recognition of the authority's many contributions to its success, the authority's executive director, Ralph J. Bartholomew, has been invited to become a member of the board. A strong supporter of the program, Mr. Bartholomew invites requests from anyone interested in learning more about Junior Miss Baseball.

THREE MANAGEMENT POLICY PROBLEMS BEGGING SOLUTIONS

Usually the "Hints to the Housing Manager" page features *answers* to management problems. Here, by way of a change, are some *questions*. One was posed to project tenants, another was posed to housing managers, and a third was posed to NAHRO. All of them ask "What would *you* do?"

Problem One—The manager of Central City in Birmingham asked his tenants through the project newsletter this summer: "What would your reaction be if you were the manager of Central City and you came to the entrance of a three-story building that was littered with paper and refuse? Suppose also there were six adults sitting around in front of this entrance with the paper all around them? Now let's assume that you mentioned the fact that the entrance needed cleaning up and you got the following six comments:

" 'I didn't put that paper down

there so I'm not going to clean it up.' 'You should stop the ice cream man from coming through here and selling the kids ice cream. That's where most of the paper comes from.' 'Some kids from over on Fifth Avenue littered up the front so I'm not going to clean it up.' 'This entrance stays dirty all the time but it's not my fault so I'm not going to do anything about it.' 'Let the people that put it there pick it up.' 'I haven't got any children so it's not my job to clean up after them.'

"Suppose in this group there were two people paying $14 a month rent, one paying $23, and the rest paying $17. If you were the manager . . . and you wanted to do a good job for the money you were being paid, what would be your reaction?"

What would yours be?

Problem Two—Charles S. Graham, executive director of the New Britain, Connecticut housing authority has another kind of problem. He set it forth in a recent issue of the newsletter of the Connecticut state housing division.

"Should the housing authority proceed to evict this family as undesirable," he asked his fellow officials in the state. The problem family, he explained, had been taken in by the authority when its house burned down in the middle of the winter. "A tragic case," said Mr. Graham. Later, however, it developed that the head of the family himself had put the torch to his own house. The problem: should the authority evict the family as undesirable or should the family be allowed to stay *because* they are undesirable and would stand little or no chance of gaining accommodations elsewhere, with childrens' health and welfare in the balance?

Mr. Graham's own solution is to let the family stay in public housing. "Tenant selection for public housing is the fundamental task of selecting those in the greatest need," he said. But he also recognizes that by aiding "undesirable" families, authorities find themselves criticized for the actions of these tenants, posing what Mr. Graham calls "one of the greatest problems of public housing and an unsolved one."

Problem Three—The third problem to reach NAHRO's offices recently came from overseas—from W. B. Hussey, who is doing a management job for the Department of State. He writes, in part: ". . . I have found the greatest number of complaints come from our billing tenants for broken windows . . . I established the policy that, except for acts of God, the tenant was responsible for broken windows in his apartment. Thus, when a stone, baseball, etc., comes through a window the tenant is charged for the replacement of that window. If the tenant can identify and extract the cost of the window from the individual who actually broke it that is his business but it is not the business of management to act in the role of an investigator and collector of money from the person breaking the window. I would appreciate learning the practice regarding such charges now in America."

What's *your* practice?

NOW Unclog stopped-up sinks, drains, toilets INSTANTLY!

The New Magic Action DEPTH BOMB

Retails for only $2.95 — lasts for years

- Tested and proved by over two years on the market
- Scientific design creates more vacuum, more force
- Unclogs most stoppages in ONLY ONE THRUST
- Reduces plumbing bills, saves time, work
- Fits any kind of sink, bowl, or bathtub

N & N SALES COMPANY

5535 Agra Street • Bell Gardens • California

CATHODIC PROTECTION—

(Continued from page 360)

negative to surrounding soil by drainage to the railway return circuit is evidence that they do have a fair degree of conductivity. Where such mains are interconnected with gas pipes, and particularly steel pipes, through service connections to gas water heaters, it may be possible to provide protection to the combined system by the use of relatively small rectifiers placed at frequent intervals and thereby avoid carrying currents for long distances over the mains. Where large and important mains are concerned, in highly corrosive soils, it may be a matter of economy to bridge each joint with a copper bond. The best solution in any instance will usually be found only by cut-and-try operations and diligent experiment and tests. Ordinary Dresser couplings usually act in a conducting capacity but occasionally are of high resistance, depending on whether the pipes are truly aligned. It is usually possible to locate high resistance joints by applying a potential of 15 to 20 volts or more between the anode bed and the piping system and then measuring potentials between services and making local surface explorations with a half-cell electrode.

Anode Space

Finding suitable space for anode beds may be a serious problem in metropolitan areas but it should present no great difficulty in most housing projects. Consideration should be given to keeping anodes well spaced from the pipes, as previously discussed, and to selecting areas of low resistivity soil. Distribution of anodes throughout the area under protection will afford a better distribution of current than a concentrated anode bed but involves a problem of electric transmission that may be difficult and expensive. Multiple rectifier units of small capacity will also give a more uniform distribution of electric current than a single unit with a concentrated anode bed.

For best efficiency, anodes should be placed far enough apart to prevent either undue crowding or shielding among them. Where space is available, a separation of at least 20 to 30 feet should be maintained. Experimental data on this effect can be found in an article entitled "Design of Anode Systems for Cathodic Protection of Underground and Water Submerged Structures" by E. R. Shepard and Henry J. Graeser, Jr., that appeared in *Corrosion* of November 1950.

Design of System

To those who are unfamiliar with the procedure for design of cathodic protection systems, the following brief outline may be of value. The problem is approached by assuming

(Continued column one, page 364)

Hints to the Maintenance Man

PAINTING WITH ROLLERS CHEAPER THAN WITH BRUSHES, TEST SHOWS

"We are now painting apartments two coats with rollers at the approximate cost of one coat with a brush." This good news was reported to the commissioners of the Wilmington, North Carolina housing authority in a recent monthly report from the authority's executive director.

The new policy was instituted as the result of a test conducted at two projects, the Dr. W. Houston Moore Terrace—painted with rollers—and the Robert S. Jervay Place project—painted with brushes. Record was kept for each project on the cost of labor and materials and on the amount of time required for the job.

The results: to paint a two-bedroom house, the brush method required $53.92 in labor, $33.95 in materials, and 49 hours for one coat. The same kind of house painted with rollers required only $36.11 in labor, $34.10 in materials, and 37½ hours for two coats. Similar ratios of cost resulted when three- and four-bedroom row houses and three-bedroom flats were included in the test.

"It would seem from the figures above," the director's report continued, "that it would be advisable to go to rollers on all of our projects."

NEW YORK AUTHORITY PERSONNEL GET MAINTENANCE HINTS AWARDS

For an idea that has saved the New York City Housing Authority an estimated $9000, Alfred A. Ross (right, above), an electrician in the authority's central maintenance section, in June received a $100 check from Philip J. Cruise, the authority's chairman. Mr. Ross's $100 idea was for a control device that automatically varies the amount of heat going to apartments. Normally this control job is done manually and requires the periodic attention of a building engineer. With the new device, the heating system valves open and close automatically, thus reducing labor costs. The C. A. Dunham Company, manufacturer of the heating system on which Mr. Ross's control is used, makes a similar control at a cost of $150 more each than that of the Ross device. The authority has installed 60 of the Ross controls to date and, with a $150 savings on each unit, the authority has realized a $9000 savings on the cost of the control units alone,

in addition to the reduced labor costs. The authority feels the device is so successful that it is considering patenting it.

Mr. Ross and another maintenance man won two of the three cash awards given in June by the authority for ideas submitted by employees to improve the authority's operating procedures. The second cash award, $25, was won by Vincenzo J. Marchione, an elevator mechanic with central maintenance, for his suggestion of a safety device to protect elevator cars. A third maintenance man, Louis Curcio of the Baruch project, also made a showing as one of three employees given honorable mention for their suggestions. Mr. Curcio suggested a method for handling incinerator cans more safely and easily.

The awards were presented as part of the authority's employee suggestion program under which staff members are encouraged to submit ideas for improvement of operating practices. An awards committee made up of department heads plus the secretary of the authority judges the suggestions, with ideas recognized through cash prizes ranging from $25 to $100. Runners-up are given honorable mention. Since the suggestion program was initiated in February of 1949, a total of 930 suggestions have been submitted, 51 of which have earned cash prizes and another 51 honorable mention.

PAINT FAILURE REMEDY CHART TELLS HOW TO REPAIR BAD JOBS

Common paint failures, their symptoms, probable causes, and the appropriate treatments to cure them are the subjects of the "Paint Failures and Remedies" chart shown below. It originally appeared in the August issue of *Buildings* magazine. The chart lists and describes nine common defects on painted surfaces and tells how the damage can be repaired or, if repainting is necessary, explains how similar defects can be avoided by proper use of the paint.

GUIDE TO CAUSES, REMEDIES OF PAINT FAILURES

Failure	Symptoms	Probable Causes	Treatment
CHALKING	Chalk-like appearance early in the life of the paint job	Poor paint with insufficient oil content. Fine application over an improperly prepared surface, or in freezing weather	Easy to correct if caught before paint wears down to the wood. Wire brushing prepares the surface. Be sure paint has enough oil content
BLISTERING	Paint film is pushed off in breaking and peeling blisters	Construction defects resulting in water seepage. Painting over a damp surface	Remove all paint, correct structural faults. Let surface dry thoroughly before applying new coat of paint
CHECKING	Small cracks in a new coat of paint	Poor workmanship or improperly formulated materials	Normal weather wear often causes cracks to disappear. If not, repaint with paints which are properly formulated, both undercoat and finish. Don't skimp. Have surface prepared with wire brushing. Allow over 72 hours between coats of paint
ALLIGATORING	Surface looks like an alligator's skin	Improperly built up paint film. Use of paints with too much thinner or water in them	Remove old paint. Check new paints for oil content
CRACKING	Fine cracks which permit water to seep throughout wood. Edges of the paint curl, flake and scale off	Poor paint. Paint drying too hard for conditions of the particular job	Wire brush the surface. New paint job. Make sure new coats of paint are all of equal elasticity, with equal ability to expand and contract
WRINKLING	Paint surface has appearance of leather	Too heavy a coat of paint. Improper brushing. Use of wrong combination of oil and pigment in the finish coat	Sanding off and repainting with proper materials
STAINING	Blemishes and stains, often around knots in wood or in damp, shaded areas where mildew attacks portions of paint	Water dripping from a poorly painted gutter or pipe. Surface painted while still damp. Knots in wood which secrete resins that cause stains	Treat surfaces where mildewed with trisodium phosphate in water. Use special compounds in paints. Clean surfaces where color has concentrated and let them dry, repaint. Seal knotholes in wood
SAGGING	Paint hangs in bowing, ribbon-like form	Improper formulation of the paint with lack of proper balance between pigment and thinner. Too thick and hasty application of paint, causing it to pull its own weight down	Sand away irregularities before repainting. If old paint must be removed, remove all of it. Fill up all cracks to prevent moisture getting to the wood. Fill nail holes with putty and nail down loose boards. Wire brush surface
SPOTTING	Speckled appearance of light and dark spots of varying sizes	Unequal oil absorption of the surface. Skimping or trying to make one gallon of paint cover an area requiring two gallons	Sand and wire brush the surface and apply special prime sealing coat. Don't skimp on repainting job. Make sure there is enough oil in new materials

CATHODIC PROTECTION—

(Continued from page 362)

a current density to be applied to the piping system under consideration. Knowing the external area of the pipes, the total current requirement is computed and from this figure and the electrical resistivity of the soil the number of anodes required is derived.

Let i be the current density in milliamperes per square foot to be applied to the pipes;
A, the total area of the pipes in square feet;
I, the total current required in amperes;
E, the rectifier voltage in volts;
P, the electrical resistivity of the soil in ohm-ems;
R, the resistance of one anode to ground;
N, the number of anodes;
C, the cost per anode installed, in dollars;
r, the rate of interest, depreciation, and maintenance on the anodes;
p, the electric power rate in dollars per KWH.

A cathodic current density of 2 to 3 ma. per square foot is usually considered adequate to protect bare iron pipes in most soils. In a network of different sizes of pipes, the current densities will be in some ratio inversely proportional to the pipe diameters—or, in other words, the smaller diameter pipes will collect a higher current density than the larger pipe. However, as the smaller pipes are thinner walled and therefore more vulnerable to corrosion, the disparity in current densities is a fortuitous circumstance in their favor. So little data are available directly relating current densities to degree of protection that no standards of practice have been adopted. A more widely used criterion is the pipe-to-soil potential of about –0.85 volt when using a Cu-$CuSO_4$ half-cell, or a change of 0.25 to 0.3 volt from the values observed under no cathodic protection.

The rectifier voltage, E, usually employed, ranges from 12 to 30 volts but is subject to rational determination by equating the annual charge on the anode bed to the annual cost of power. On this basis, we are now ready to undertake our design:

$i = 2.5$, assumed, for bare pipe,
A is determined from design or construction records or maps, therefore
$I = iA$
P is determined from 4-pin or other resistivity measurements

The resistance of a 3-inch x 5-foot graphite anode (a commonly used unit) to ground is roughly proportional to P, the electrical resistivity of the soil, but varies somewhat depending upon the type of soil in the deeper strata, which may be considerably higher in resistivity than the measured values at electrode depth. An underground rock formation will confine the current flow to the upper strata, thereby giving the effect of a higher soil resistivity than that measured by the 4-pin method at shallow depths. As a rough approximation until accurate data are available

R may be taken as 0. 004 P.

As the resistance of the electric circuit is confined largely to the resistance of the ground bed, R/N, we may, for this derivation, neglect the line and pipe resistance and write

$E = IR/N = 0.004IP/N$, and from this,
$N = 0.004IP/E$.

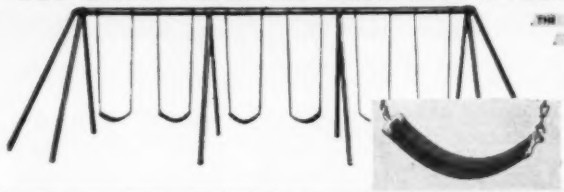
As the total cost of the anode bed is NC, the annual charge on the anode installation, taking $r = 0.i3$, which allows about 8 per cent annually for depreciation and maintenance and 5 per cent interest rate on money, will be $0.004rCIP/E$.

The annual power charge, assum-

(Continued column three, page 365)

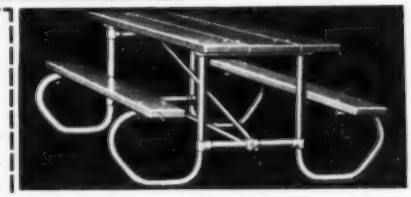
BUY LATEST IMPROVED EQUIPMENT... BUY

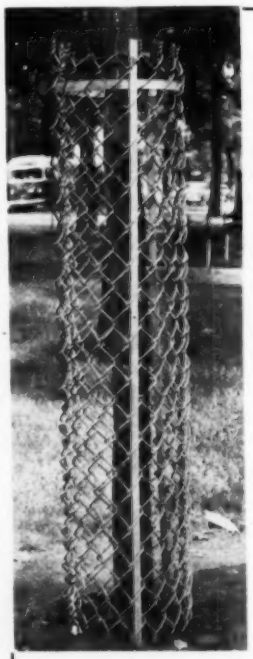
THE RECREATION LINE



Have Swing Sets with belt seats for safety, one of the improved features of Recreation equipment. Below, portable picnic table, 8' long, open end for easy access. Many other superior items!

RECREATION EQUIPMENT CORP.
Dept. JH-10, 724 W. Eighth St.
Anderson, Indiana
Please send me your Free Catalog
Name.....
Address.....
City..... State.....





new... improved

TREE GUARD

Developed by
PHILIP KENT — SENIOR ENGINEER
Chicago Housing Authority

THESE NEW AND IMPROVED TREE GUARDS require no punching or drilling of holes — no rivets or bolts. They can be dismantled easily after serving their purpose and reassembled around other trees.

ONLY
F.O.B. Chicago
Shipping weight 25 lbs.
$6.00 each

Manufacturers and Erectors of
DIAMOND BRAND CHAIN LINK FENCE also POSTS AND CHAIN FENCE FOR GUARDING LAWNS

Produced by

The Chain-link Fence Corporation

4301 W. 69th St. Chicago 29, Ill.

Personnel Exchange

POSITIONS AVAILABLE

A3—SANITARIAN III

To perform professional and supervisory public health work. Salary range: $5916-$7430. Requirements: graduate of a four-year college or university with major course work in engineering or sanitary science, supplemented by courses in environmental sanitation, including one year in a supervisory capacity or any equivalent combination of experience and training. Make application to: Personnel Department, Room 127, City Hall, Philadelphia 7, Pennsylvania.

A11—PROJECT PLANNER

A midwestern authority is looking for a project planner to assist in developing plans for both urban redevelopment and housing projects. Duties: prepare general plans, review plans submitted by interested developers, study proposed redevelopment areas, plot relocation needs, assist the executive director in coordinating all activities in connection with housing and redevelopment programs. Qualifications: college degree in architecture, city planning, or engineering, plus at least three years experience, two of which must have been in a responsible administrative capacity. Salary: $500-$600 per month, depending on qualifications.

A12—HOUSING MANAGER

A private corporation in the New England area currently converting 773 dwelling units into a cooperative housing group is looking for a manager to operate the entire development. Persons skilled in administration of public housing projects are regarded as particularly qualified. Salary would be negotiated depending on experience and qualifications of applicants.

A13—PLANNING ANALYST II

Salary range: $5400-$6783. Qualifications: degree in planning or social sciences, plus four years experience in the design and execution of research connected with housing, city planning, or related fields. Training and experience should emphasize knowledge of statistical methods and their use in planning. Write to: David A. Wallace, Director of Planning and Development, Philadelphia Redevelopment Authority, 910 Board of Education Building, Philadelphia 3, Pennsylvania.

A14—PLANNING DESIGNER III

Salary range: $5652-$7100. Qualifications: graduation from a four-year college or university with major course work in planning, engineerig, architecture, or landscape architecture, plus three years experience in land planning and site planning, including one year in supervisory or advanced technical capacity. Ability to supervise the work of five to seven land planners necessary. Knowledge of detailed redevelopment procedures and subdivision layout desirable. Write to: David A. Wallace, Director of Planning and Deveiopment, Philadelphia Redevelopment Authority, 910 Board of Education Building, Philadelphia 3, Pennsylvania.

A15—PLANNING DESIGNER II

Salary range: $4500-$5652. Qualifications: same as A13 except two years of experience in planning design work. Land planning experience is essential. Write to: David A. Wallace, Director of Planning and Development, Philadelphia Redevelopment Authority, 910 Board of Education Building, Philadelphia 3, Pennsylvania.

A16—REDEVELOPMENT DIRECTOR

Redevelopment director to supervise a slum clearance program in a 113 acre residential area. Experience in running a Title I program essential. The Johnson City Housing Authority, 901 Pardee Street, Johnson City, Tennessee.

(Continued column one, page 366)

TWO 1955-56 FULBRIGHT FELLOWSHIPS OFFERED IN MUNICIPAL GOVERNMENT, PUBLIC ADMINISTRATION

Two Fulbright scholarships are being offered for the academic year 1955-56, one to study comparative municipal government by working with the International Union of Local Authorities in The Hague, Netherlands, and the other to study comparative public administration by working with the International Institute of Administrative Sciences in Brussels, Belgium. The Fulbright grants provide nine months adequate living conditions and round-trip ocean travel.

Candidates for the fellowships must be under 35 and, for the Brussels assignment, must have a working knowledge of French. Candidates need not be in academic residence. Civil servants, journalists, members of the staff of private research bureaus or agencies concerned with public administration are invited to apply. For further information write to Charles S. Ascher, Associate Director, Public Administration Clearing House, 45 East 65th Street, New York 21, New York.

NOW!

The Finest Silicone Water Proofing Costs No More When You Specify

CRYSTAL

FIRST SUCCESSFUL INVISIBLE MASONRY WATER REPELLENT

The revolutionary principle of water-proofing with silicones was discovered by Wurdack Chemical Co. Many of America's finest public and privately owned buildings are protected with Wurdack's CRYSTAL. Only CRYSTAL has a record of 8 years of proven performance. Now, CRYSTAL costs no more. Play safe — specify CRYSTAL.

WET WALLS? Write for literature, prices and name of nearest applicator.

WURDACK CHEMICAL CO.
4963 Fyler Ave., St. Louis 9, Mo.

Mail me literature, prices and name of nearest ☐ Applicator. ☐ Distributor.

Name_____

By_____

Address_____

City_____ State_____

CATHODIC PROTECTION—

(Continued from page 364)

ing 60 per cent rectifier efficiency, will be $\frac{EIp \times 24 \times 365}{1000 \times 0.60}$. Equating these two we have

$E = 0.0165 \sqrt{\frac{r\ CP/p}{}}$ Equ. 1,

$= 0.00595 \sqrt{CP/p}$, where $r = 0.13$

Substituting in these equations we have for:

$P = 1000$, and $p = 0.01$, $E = 9.4$ for C $25, and $E = 11.1$ for C $35

$P = 1000$, and $p = 0.02$, $E = 6.6$ for C $25, and $E = 7.8$ for C $35

$P = 4900$, and $p = 0.01$, $E = 20.6$ for C $25, and $E = 24.5$ for C $35

$P = 4900$, and $p = 0.02$, $E = 14.6$ for C $25, and $E = 17.2$ for C $35

$P = 10000$, and $p = 0.01$, $E = 29.5$ for C $25, and $E = 35.0$ for C $35

$P = 10000$, and $p = 0.02$, $E = 20.8$ for C $25, and $E = 24.6$ for C $35

The number of anodes is now determined from the equation

$N = 0.004\ PI/E$

While it is possible that practical considerations such as safe voltage limits and current limitations per anode may at times be controlling factors, the equation here should, in general, be a reliable guide to the selection of rectifier voltages.

Quality Paints for Every Purpose

NEW CONSTRUCTION — SPECIFICATION MAINTENANCE

TWELVE STAR PAINTS
STERLING VARNISHES

STEBBINS & ROBERTS, INC.
MANUFACTURERS
LITTLE ROCK • FORT WORTH

Patent No 2522778
C
PAR
N
The Garbage Can Holder
practical, economical, and sanitary solution to garbage can problems.
PREVENTS RUST • ELIMINATES PESTS • LASTS INDEFINITELY
For Complete Details Write Direct
CANNON-PARKER
P O Box 9051, Mountainbrook Branch, BIRMINGHAM 9, ALABAMA
Patent No. 2522778
Available with or without chain.

PERSONNEL EXCHANGE—

(Continued from page 365)

A17—REDEVELOPMENT DIRECTOR

Salary range: $5325-$5840, depending on qualifications. Duties: administration of slum clearance and urban redevelopment program operating under Maine Redevelopment Act of 1951 and under applicable federal legislation. Qualifications: experience in urban redevelopment, public housing, city planning, or public administration, particularly at the municipal level. Applications should be submitted to Caspar F. Cowlan, Chairman, Slum Clearance and Redevelopment Authority, Room 60, City Hall, Portland, Maine. Deadline for applications is October 30, 1954.

A18—SENIOR PLANNER

A private planning association is looking for a chief planning technician to plan commercial, industrial, residential, and traffic patterns in a redevelopment area of a large city. Duties include gathering and analyzing all pertinent data; liaison with local agencies, businesses, and public; assisting in formulating conservation plans; and interesting private and public investors in the redevelopment operation. Salary: $8000.

POSITIONS WANTED

W10, Male, 33—DIRECTOR, ADMINISTRATIVE ASSISTANT

Eight years experience in public administration as director of a county housing authority. Training in municipal administration.

W11, Male, 31—TENANT SELECTION

About five years experience setting up and directing a tenant selection and re-examination department. Duties include processing applications for about 5000 units; liaison with employers and with community and civic groups; recruiting and training departmental employees; initiation of forms and procedures for the department's operation; supervision of a dozen employees; and coordination of relocation functions with redevelopment and housing projects. Education: B.A. degree plus all course work for master of business administration degree.

W12, Female—TENANT INTERVIEWING, SELECTION

B.S. degree plus graduate work in home economics. Two years teaching experience. Would like to engage in home investigating, property management, interviewing applicants for housing, or making checks on tenants' income and employment status.

W13, Male, 35—COMMUNITY ORGANIZATION

Three years experience in field work studying community problems. Four years experience teaching various levels in sociology. Has B.A., M.A., and Ph. D. in sociology. Doctor's dissertation on city management. Has had additional articles on city management published. Salary requirement: $4000.

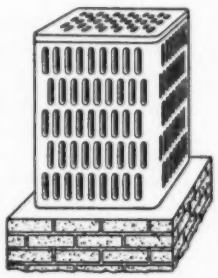
W14, Male, 31—COMMUNITY ORGANIZATION

B.A. degree in political science, master's degree in public administration plus supplementary studies in history. Applicant has been active in his own community working on neighborhood problems and has done similar work in cooperation with local, state, federal agencies.

PERFORATED CLAY

CHIMNEY TOPS • NON CORROSIVE, ACID-PROOF, HEAT-RESISTANT • FOR INCINERATORS, CHIMNEYS, HEATING UNITS, FIREPLACE FLUES

We also build and design
FLY-ASH PRECIPITATORS



PERMANENT
FIREPROOF
ATTRACTIVE

Pat. 2,598,603

write

The PERMA-TOP Co.
410 Shadyhill Rd., Pittsburgh 5, Pa.

Many authorities have installed these spark arrestors.

DETROIT STOKER COMPANY

Sales and Engineering Offices
General Motors Building, Detroit, Mich.

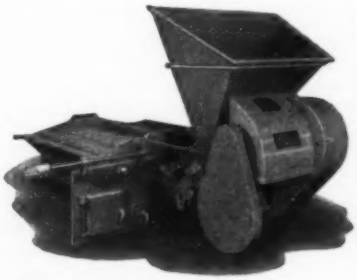
Main Office and Works: MONROE, MICH. District Offices in Principal Cities

PRODUCTS AND SERVICE

Detroit Stokers are unsurpassed for economy and dependability. Both Underfeed and Overfeed Stokers of many sizes and capacities. All grades of bituminous coal are successfully burned without expensive preparation. Operating costs are low, plant efficiencies raised to new standards and capacities of present boilers increased. The purchaser is assured a Detroit Stoker best suited to his particular boiler, kind of coal available and capacity required. Proper design and application by experienced builders produce best results. Write for *Bulletin 559.*

DETROIT LOSTOKER

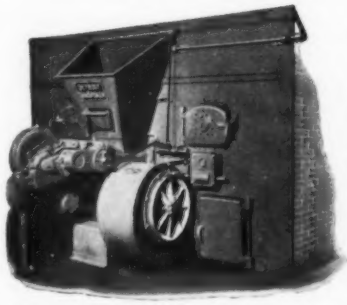
Now Available with Detroit Adjustable Feed (Coal Feed Control).



Detroit LoStoker, built to fit the furnace of high Firebox Boilers. Requires no side wall or front wall brick work.

Detroit LoStoker is a complete firing unit. Compact — single retort — mechanically driven — plunger feed — side-cleaning design. Many sizes and capacities for various types of boilers. Simple, accessible, dependable.

Now the LoStoker is available with the *Detroit Adjustable Feed*, a reliable automatic coal feed control. It regulates the fuel supply according to the load when connected to a Master Regulator which also controls the air. Coal and air are thus proportionately varied for maximum efficiency at all capacities. Write for *Bulletin 359.*



Detroit UniStoker with Adjustable Feed provides a wide range coal feed control.

DETROIT UNISTOKER

Plunger feed, side-cleaning stoker is available in various sizes for 125 to 250 horsepower boilers. Compact, unit type, has full-housed blower either motor or steam turbine driven, conveniently mounted at stoker front. Adjustable Feed provides for either manual or automatic coal feed control. Thousands in daily operation. Write for *Bulletin 659.*

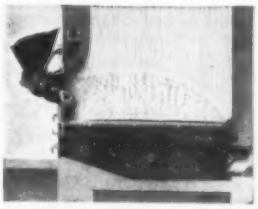
Detroit Double Retort Stoker now equipped with Detroit Adjustable Coal Feed Control.

DETROIT DOUBLE RETORT STOKER

Two retorts will do more than one. The Double Retort is a multiple retort stoker having two retorts, with the side-cleaning feature requiring no basement. Now available with Detroit Adjustable Feed Coal Feed Control so that the coal and air supply are always proportioned to the load. For medium sized boilers. Write for *Bulletin 459.*

Manufacturing facilities are unexcelled. All Detroit Stokers are completely assembled and inspected at our works and erected under expert supervision.

DETROIT ROTOSTOKER



Stationary Grates. Ash removal is through doors at grate level.

Hand Dumping or Power Dumping Grates as shown above.

Detroit RotoStoker is a spreader stoker with OVERTHROW ROTORS that distribute the fuel uniformly in the furnace. Fine particles burned in suspension and coarse coal, burned on the grate with a comparatively thin but uniform fuel bed. Four types of grates are available. RotoStokers burn successfully an extremely wide range of fuels without any special preparation. Responsive to fluctuating loads, maintaining uniform steam pressure under automatic control of fuel and air supply to the furnace. Operate with high CO_2, low combustible loss in ash. Little power required for operation. Maintenance costs are negligible. In combination with coal, RotoStokers also successfully burn wood and other refuse. Write for *Bulletin 859.*

Detroit RotoStoker — Type CC (Continuous Cleaning)

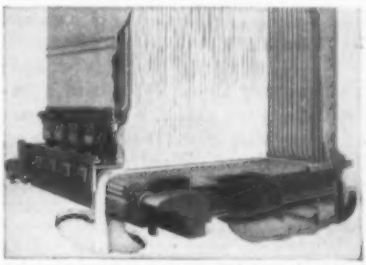
DETROIT ROTOSTOKER TYPE CC

(Continuous Cleaning)

An important recent addition to the comprehensive "Detroit" line of spreader and underfeed stoker. Readily applied to small and medium size steam generators approximately 5,000 to 75,000 pounds of steam per hour. The continuous cleaning grates automatically discharge the ash at the front for easy removal either at floor level or from the ash hopper beneath. Easily applied to existing boilers, no basement needed. Write for *Bulletin 800.*

DETROIT ROTOGRATE STOKER

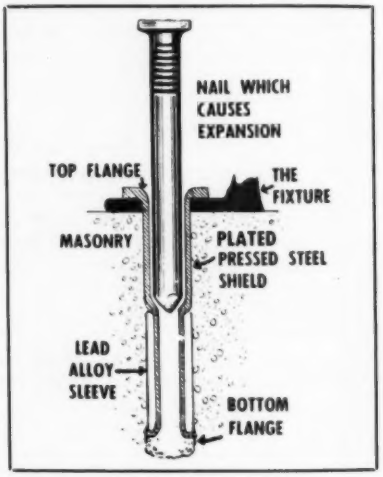
Spreader stoker with FORWARD MOVING GRATES for medium and large boilers up to approximately 400,000 pounds of steam per hour. Fine particles of fuel are burned in suspension and coarse coal on the grate. Screenings or crushed run-of-mine coal are used without grinding or pulverizing. Successfully burns a wide range of fuels, including the lower grades of Bituminous Coal and Lignites . . . with preheated air if desired. Higher burning rates for longer periods without slagging or clinkering difficulties. Combustible in ash is usually less than two percent. Write for *Bulletin 8059.*



Detroit RotoGrate Stoker applied to the water-cooled furnace of a steam generator. Two of the feeders are removed to show the overlapping grates especially designed for RotoGrate Stoker firing. The grates move slowly forward so as to discharge the ash continuously at the front.

New Maintenance Products

JOH-U1—MASONRY NAIL



Many nails, man hours, and tempers are sometimes lost trying to drive nails into masonry walls—but an easy way to do the job is to use a *Dryvin* masonry expansion nail (illustrated above), claimed to provide a firm anchor that can't be loosened by tension or vibration.

Only a masonry drill and a hammer are needed to install the *Dryvin*. First step is to drill a hole in the masonry of a width and depth suitable to accommodate a hollow steel shaft, the function of which is to line the hole for the nail. The top part of the shaft is just wide enough to accommodate the nail but the bottom part is narrower and is surrounded by a lead alloy "sleeve." When the nail is hammered all the way into the shaft, the lead alloy, which has a pliable quality, is forced to expand into all the irregularities of the inside wall of the hole. This gripping action, plus flanges at the bottom of the shaft that are also forced out against the masonry, tighten the entire installation.

Dryvins are available in 16 shaft sizes ranging from those with a $\frac{3}{16}$-inch diameter and a $\frac{7}{8}$-inch depth to those with $\frac{1}{2}$-inch diameter and $3\frac{1}{2}$-inch depth. They are supplied with single or double headed nails.

JOH-U2—PAINT REMOVER

What's the most potent and quickest acting noninflammable paint remover on the market? *Glid-Strip*, according to its manufacturers, who claim their product will remove all kinds of paint and varnishes, including latex base paints and baked enamel finishes.

Glid-Strip's first claim to fame: fast action. Once applied on a wall, it immediately goes to work and permeates the surface, loosening and wrinkling the coating until it can be removed by a scraper or, on rough surfaces, by steel wool.

Glid-Strip's second claim: it sticks to the job. For paints that are slow to loosen, *Glid-Strip* will remain moist and active for as much as six hours because its ingredients form a film that holds the remover to the wall and prevents evaporation.

An added attraction: *Glid-Strip* is also a good paint brush cleaner.

JOH-U3—MULTI-USE GAS MOTOR

Power tools can make life easy in the maintenance shop but they can also make it tough in the budget department, where their high costs tend to slow down enthusiasm. But here's a tool manufacturer who has worked out a system for having your cake and eating it too—power tools at a much reduced price.

The manufacturer has produced a multi-purpose gasoline motor which, by means of a variety of interchangeable attachments, will bore holes, pump water, fell trees, drill fence posts, cut brush, mow weeds, and generate 1500 watts of electricity.

The big savings possible through this multi-use gasoline engine is made by avoiding the expense of buying single purpose power units for each power tool. By buying the motor, a maintenance man has already acquired the power to run any of the attachments, which he then buys only when and if he needs them.

JOH-U4—BORING BIT SET

Here are some tidbits about boring bits that aren't a bit boring.

A set of wood boring bits that are claimed to outperform any others on the market is now available in the handy little package pictured below. Called the *Time Saver, Jr.*, the set includes eight bits ranging in size from 9/16-inch to 1-inch, plus a shaft that holds the bits at one end and that can be attached to a $\frac{1}{4}$-inch electric drill at the other. The blades are made of hard tempered blue spring steel, are said to remain sharp longer than average bits, and to be replacable at low cost.

Performance-wise, the manufacturer claims the new bits make clean straight holes; drill through cross or end grain; and can be used on wood, plastic, or any composition material.

Packaged in a plastic case, the *Time Saver, Jr.*, set retails for $1.98 2 bits a bit, or 16 bits for 8 bits).

Free Literature

JOH-U5 — Production Maintenance of Motors, Generators and Control. 104 pp., charts.

Published by a major manufacturer of electric machines, this handy pocket-size booklet contains general information on how to make the best use of electric machines through proper maintenance.

JOH-U6—The Electronic Control Story. 23 pp., diags.

Written to aid in the design of control systems for heating, ventilating, or air conditioning plants, this "story" explains the theory and practice of electronic controls and cites various wiring layouts to suit various purposes.

JOH-U7—Quick Reference Guide to Products and Methods Used in the Maintenance and Construction of Buildings and Structures. 21 pp., illus.

Roofs, floors, masonry preservation, sash maintenance — all these maintenance operations and more are covered in the guide. What to look out for in maintenance checkups, what causes certain kinds of defects, and what to do about them are also featured.

JOH-U8—Complete Sash Maintenance. 16 pp., illus., diags.

General information on selecting, installing, and maintaining casement, double hung, awning, projection, and other common types of windows. Techniques for caulking, glazing, and painting are explained and all aspects of sash maintenance, masonry restoration, and rust prevention are illustrated.

JOH-U9 — Piping for Permanence. 32 pp., illus.

General information on planning a piping or plumbing system, with an explanation of how the chemical characteristics of locally supplied water can corrode or otherwise effect the piping used and how such considerations can be taken into account in the selection of piping.

New Construction Products

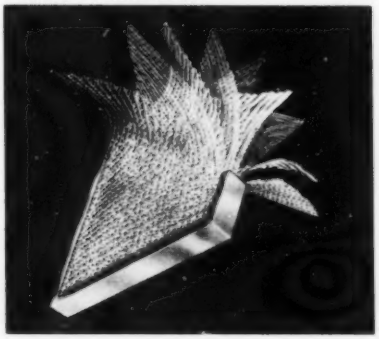
JOH-U10—PROTECTION PAPER

Bathtubs damaged by construction workers' shoes may be either one of the last problems facing the construction contractor or one of the first facing the maintenance crew . . . or it can be avoided altogether. The trick that cancels out the problem is to coat the porcelain surfaces with *Marble Protection Paper* as soon as the tubs are installed.

Marble Protection Paper is a heavy kraft sheet gummed on one side so that it can be moistened and glued onto the surfaces of plumbing fixtures. The paper protects the surfaces while workmen finish up walls and ceilings and then, when the work is done, it is easily removed by soaking with water.

The protection paper is sold in 12- and 18-inch widths in rolls that will cover an average of 20 and 30 5-foot bathtubs respectively at a cost of only about 30 cents a tub.

JOH-U11—AIR FILTER



Though most housekeepers avoid gadgets that collect and retain dirt, dust, and lint, the above illustrated dust collector is designed to help good housekeeping. It's the new nine layer, all aluminum mesh, corrosion resistant air filter for use wherever air is drawn from the outside of a building and must be cleaned before it is circulated inside.

The new filter is claimed to hold more dirt twice as long, without washing, as any other filter available. Further, it is so made that lint will not mat on the intake side—hence air flow can never be cut by more than half even when the filter is loaded with dirt.

Here's how it's done. From the intake side to the outflow side of the filter, the air passage apertures in the mesh become progressively smaller. Thus lint can't form a mat on the intake but penetrates deep into the filter. The mesh apertures are so designed that they "claw" the passing air with thousands of tiny burred talons that pull out the dirt. A special oil on the mesh retains the dirt until it is washed off. Either hot or cold water will clean the filter, either by hosing or by emersion. Once cleaned, the filter is sprayed with the special filter oil and it's ready to use again. One filter is claimed to be good for a lifetime.

JOH-U12—KLINKI PLYWOOD

A new kind of plywood claimed to be more attractive and stronger than standard plywood has recently been introduced into this country. It's called *Klinki* and it's manufactured in New Guinea. A steady supply is said to be currently available, at competitive prices.

In appearance, *Klinki* is light tan color and comes in several grain patterns. One side of each panel of the wood is said to be completely free of joints, knots, and blemishes, offering a clear, evenly shaded panel that can be easily matched with other panels without fine sanding.

Klinki is also claimed to be stronger than standard plywoods — a ¼-inch thickness serving where a ⅜-inch thickness would normally be required. The new wood is reportedly easily workable and can be sawed, sanded, etc. with ease but it also holds nails firmly.

The new plywood is available in panels 4 feet by 8 feet.

JOH-U13—WALL PANELS

The workman shown above is installing more than just another wallboard; he's installing a *Marlite* panel, a completely finished wall in itself that never requires repainting, can be washed off with a damp sponge, and is available in a variety of colors.

Designed especially for rooms or halls that are heavily used by many people—offices, washrooms—the panels can be used either in initial construction or in redecorating jobs where a durable surface easy to maintain is desirable. *Marlite* panels are made of wood with a soilproof, high-heat-baked-on finish that frees maintenance crews from periodic paintings, the manufacturer says. The panels, available in planks 8 feet long and 16 inches wide or in blocks 16 inches square, can be installed using only a hammer, a saw, and a carpenter's level. All the *Marlite* panels are built for tongue-in-groove construction.

Check and Mail . . .

Check the "JOH" numbers below that match the items on pages 368 and 369 on which you would like full technical literature. Send to the JOURNAL OF HOUSING, 1313 East 60th Street Chicago 37, Illinios.

NEW MAINTENANCE PRODUCTS

- ☐ JOH-U1 Masonry Nail
- ☐ JOH-U2 Paint Remover
- ☐ JOH-U3 Multi-Use Gas Motor
- ☐ JOH-U4 Boring Bit Set

FREE LITERATURE

- ☐ JOH-U5 Motor Maintenance
- ☐ JOH-U6 Electronic Controls
- ☐ JOH-U7 Maintenance Guide
- ☐ JOH-U8 Sash Maintenance
- ☐ JOH-U9 Piping for Performance

NEW CONSTRUCTION PRODUCTS

- ☐ JOH-U10 Protection Paper
- ☐ JOH-U11 Air Filter
- ☐ JOH-U12 Klinki Plywood
- ☐ JOH-U13 Wall Panels

SEND TO:

Name.....

Housing Affiliation.....

Position.....

Address.....

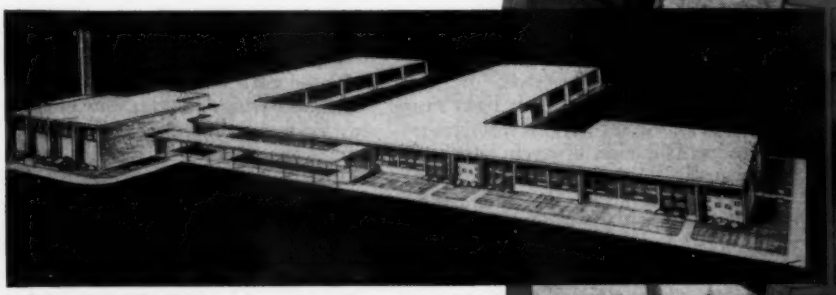
J&L STEEL

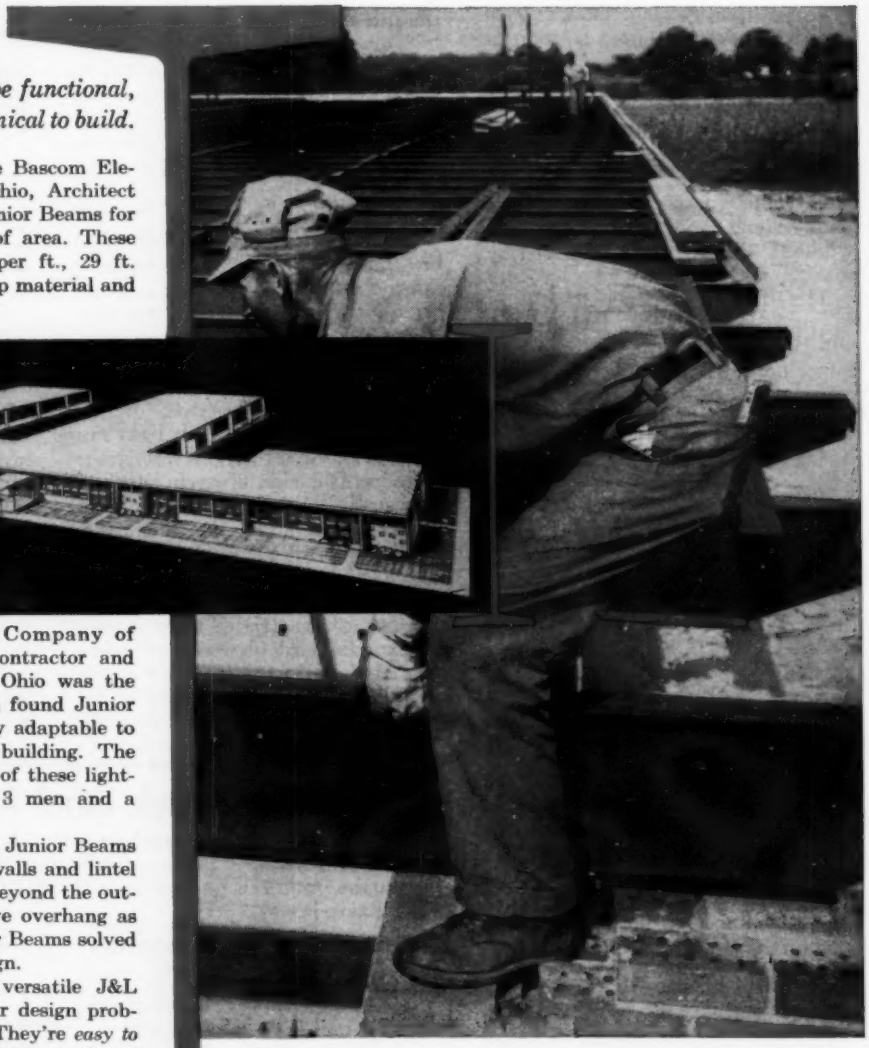
Junior Beams

fit modern design and building budget of Bascom Elementary School

Today's new school must be functional, permanent, safe and economical to build.

To realize these features in the Bascom Elementary School, Leavittsburg, Ohio, Architect Arthur F. Sidells specified J&L Junior Beams for purlins throughout the entire roof area. These 12 in. Junior Beams—11.8 lbs. per ft., 29 ft. long—proved a good choice to keep material and handling costs to a minimum.





The Campbell Construction Company of Warren, Ohio was the general contractor and J. A. McMahon, Inc., of Niles, Ohio was the steel fabricator. On the job, both found Junior Beams easy to handle and quickly adaptable to the ultra-modern design of the building. The raising, positioning and fastening of these lightweight structurals required only 3 men and a portable gin pole.

At the eaves, the pre-fabricated Junior Beams were fastened atop the masonry walls and lintel beams and cantilevered four feet beyond the outside walls to support an attractive overhang as well as the main roof. Thus Junior Beams solved a difficult problem in modern design.

There are many other ways versatile J&L Junior Beams can help solve your design problems and facilitate construction. They're *easy to install, rigid, vibration resistant, shrink proof, and have the lowest deflection factor of any structural section of equivalent weight.*

Find out! Write today for our new booklet "J&L Junior Beams." It shows how Junior Beams are used as floor joists and roof purlins with loading and spacing tables for various spans.

J&L STEEL *Jones & Laughlin* STEEL CORPORATION — *Pittsburgh*

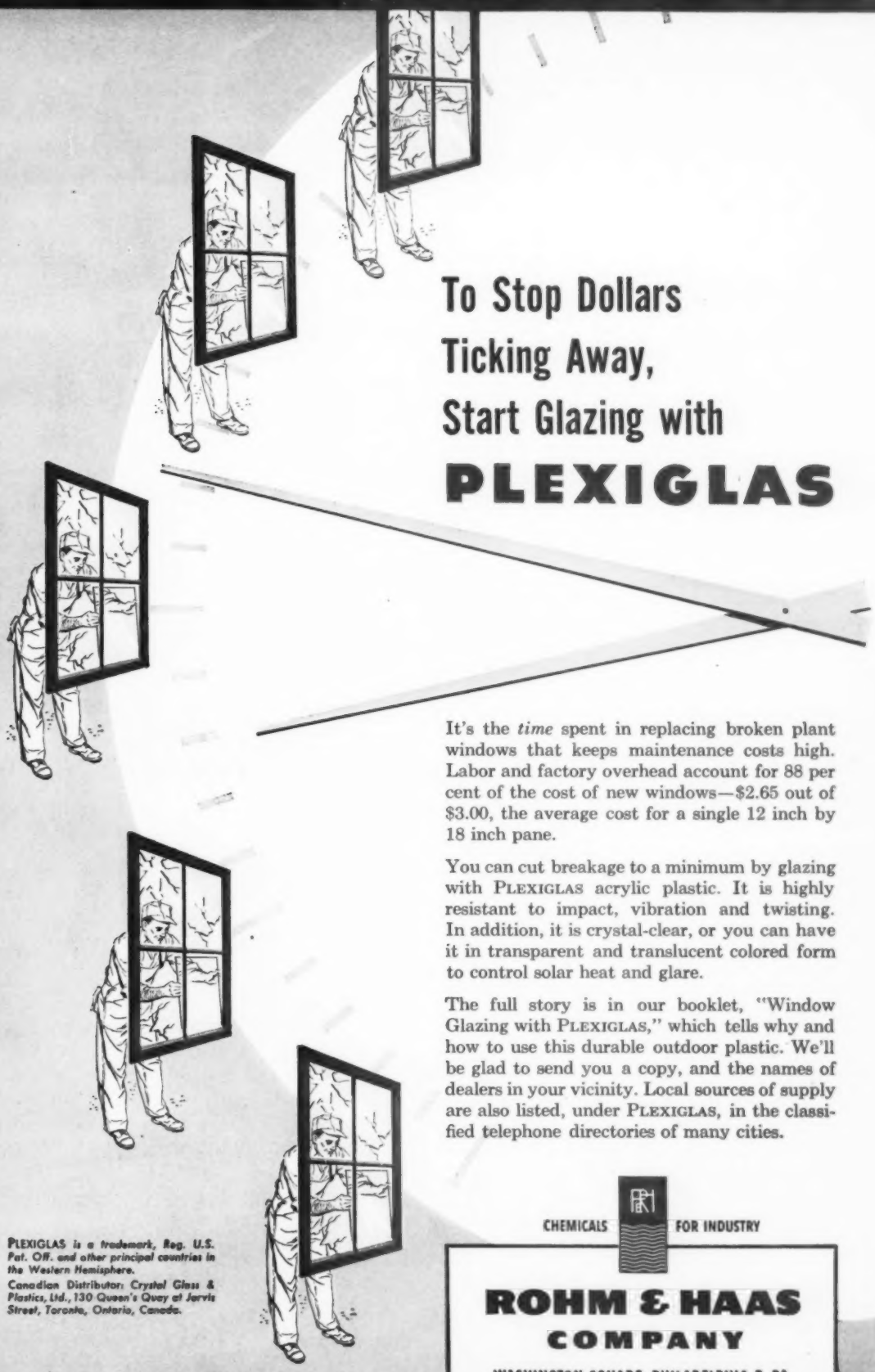
Jones & Laughlin Steel Corporation
Dept. 428, 3 Gateway Center, Pittsburgh 30, Pa.

Please send me a copy of the booklet entitled "J&L Junior Beams."

Name_____

Company_____

Address_____



To Stop Dollars Ticking Away, Start Glazing with PLEXIGLAS

It's the *time* spent in replacing broken plant windows that keeps maintenance costs high. Labor and factory overhead account for 88 per cent of the cost of new windows—$2.65 out of $3.00, the average cost for a single 12 inch by 18 inch pane.

You can cut breakage to a minimum by glazing with PLEXIGLAS acrylic plastic. It is highly resistant to impact, vibration and twisting. In addition, it is crystal-clear, or you can have it in transparent and translucent colored form to control solar heat and glare.

The full story is in our booklet, "Window Glazing with PLEXIGLAS," which tells why and how to use this durable outdoor plastic. We'll be glad to send you a copy, and the names of dealers in your vicinity. Local sources of supply are also listed, under PLEXIGLAS, in the classified telephone directories of many cities.

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

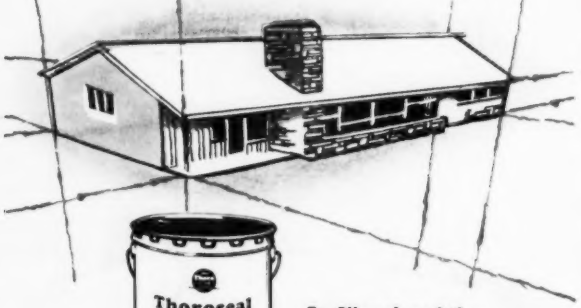
PLEXIGLAS is a trademark, Reg. U.S. Pat. Off. and other principal countries in the Western Hemisphere.

Canadian Distributor: Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.

THE JOURNAL OF HOUSING
Published by
The National Association
of Housing and Redevelopment Officials
1313 East 60th Street, Chicago 37

Return postage guaranteed

The modern home is a DRY THOROSEALED home!



To fill and seal the masonry surface

To stop seepage and streams of water

For finish coats in color, Color Card 32-B

EXPERIENCE counts in getting quality materials.

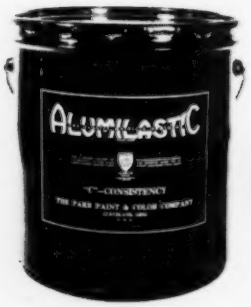
PRODUCTION volume counts in getting the lowest cost to the ultimate consumer.

ORGANIZED DISTRIBUTION and service count in getting materials to contractor, when needed.

Get our pictorially-described literature, "HOW TO DO IT" and specification guide.

Standard Dry Wall Products, Inc.
NEW EAGLE, PENNSYLVANIA

LOWEST COST because it's LONGEST LASTING

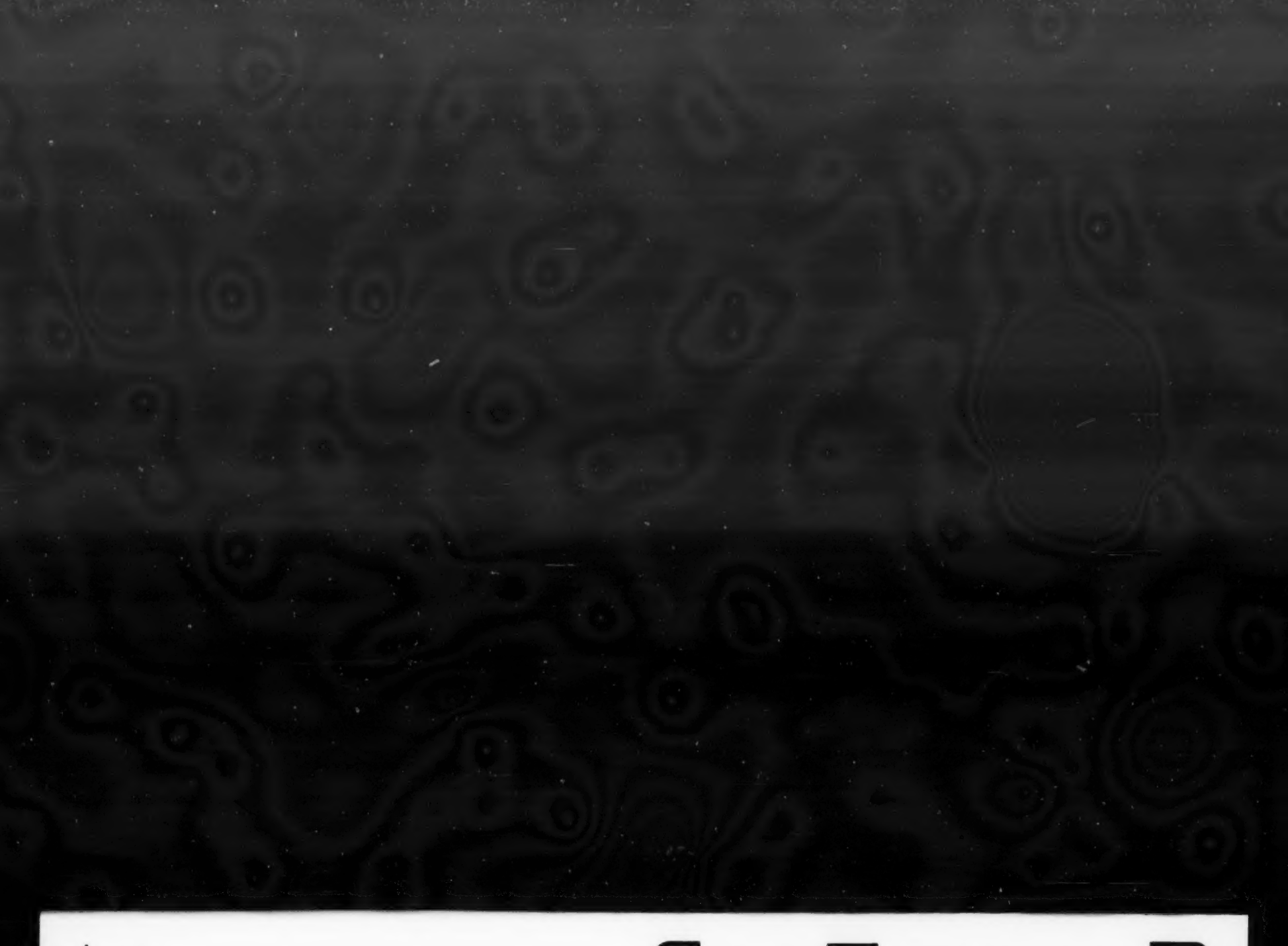


"ALUMILASTIC" for MAINTENANCE GLAZING • CALKING

THE ORIGINAL METALLIC COMPOUND . . . SINCE 1931

- Made with pure Alcoa Albron aluminum base.
- Outstanding for wood and metal sash and for all calking jobs.
- Specified by leading architects . . . contractors.

"Alumilastic" will reduce your costs because it forms a tough resilient metallic armor that resists weathering. This protects indefinitely the sealing qualities of "Alumilastic's" non-sagging, pliable body. Ask for your sample today!

YOURS! INFORMATIVE "ALUMILASTIC" BULLETIN

The PARR Paint & Color Company
19310 SYRACUSE ROAD • CLEVELAND 10 OHIO